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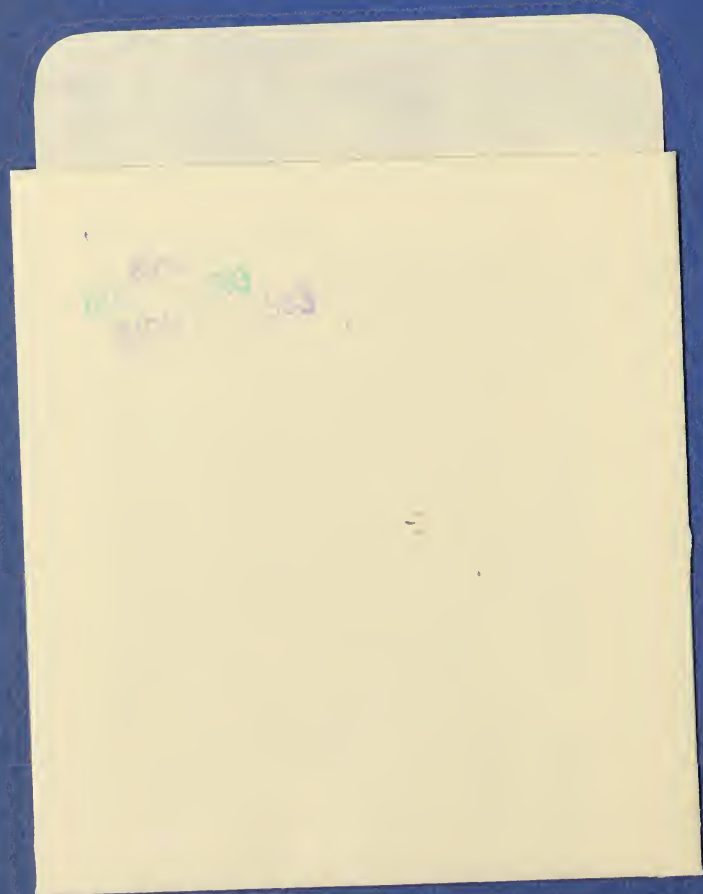
STATE OF COLORADO
BUREAU OF MINES
State Capitol, Denver

JOHN T. JOYCE, *Commissioner of Mines*

ANNUAL REPORT
for the Year 1931



BRADFORD-ROBINSON PRINTING CO.
DENVER, COLORADO
1932



STATE OF COLORADO
BUREAU OF MINES

State Capitol, Denver

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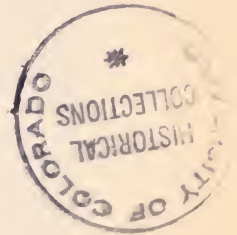
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ANNUAL REPORT

for the Year 1931



E. J. Hoelnagels.
Papers
Gift of
Mrs. Fred Smith,

BRADFORD-ROBINSON PRINTING CO.
DENVER, COLORADO
1932

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LETTER OF TRANSMITTAL

To His Excellency,

THE HONORABLE WILLIAM H. ADAMS,
Governor of Colorado.

Sir: In compliance with Section 3392 of the Compiled Laws of Colorado, 1921, I have the honor to transmit herewith the Annual Report of the State Bureau of Mines for the year 1931.

Respectfully submitted,

JOHN T. JOYCE,
Commissioner of Mines.

State Capitol,
Denver, Colorado,
May 2, 1932.

FINANCIAL STATEMENT

1928-1931

Appropriation for the fiscal period Nov. 30,
1928, to July 1, 1931—

Salary, Commissioner.....	\$ 7,750.00	
Salaries, Inspectors.....	25,833.33	
Salary, Clerk and Assistant Curator....	4,650.00	
Salary, Stenographer and Asst. Clerk..	3,875.00	
Watchman	2,670.00	
		\$44,778.33
Traveling Expenses, Commissioner and Inspectors		22,733.35
Incidental Fund		2,066.65
Extra Help.....		600.00
		\$70,178.33

DISBURSEMENTS

Salaries—

Commissioner	\$ 7,750.00	
Inspector, District No. 1.....	6,458.23	
Inspector, District No. 2.....	6,249.90	
Inspector, District No. 3.....	6,458.23	
Inspector, District No. 4.....	6,458.23	
Clerk and Assistant Curator.....	4,650.00	
Stenographer and Assistant Clerk.....	3,875.00	
Watchman	2,600.00	
Extra Help.....	600.00	
Unexpended Balance	278.74	
		\$45,378.33

Traveling Expenses—

Commissioner and Inspectors.....	\$19,209.85	
Unexpended Balance	3,523.50	
		22,733.35
Incidental Expenses.....	\$ 2,023.13	
Unexpended Balance.....	43.52	2,066.65
		\$70,178.33

PERSONNEL OF THE BUREAU OF MINES OF THE STATE OF COLORADO

JOHN T. JOYCE, Commissioner of Mines.....	Denver
GEORGE BECKER, Inspector, District No. 1.....	Denver
HERRICK McLEOD, Inspector, District No. 2.....	Cripple Creek
R. J. MURRAY, Inspector, District No. 3.....	Salida
J. F. CLOUGHER, Inspector, District No. 4.....	Silverton
W. H. WILLIAMS, Chief Clerk.....	Denver
MRS. A. M. NICKERSON, Stenographer and Assistant Clerk	Denver

DISTRICTS OF INSPECTION

DISTRICT No. 1—^aAdams, Arapahoe, Boulder, Clear Creek, Denver, Gilpin, Grand, Jackson, Jefferson, Larimer, Logan, Moffat, Morgan, Phillips, Routt, Sedgwick, Washington, Weld and Yuma counties.

DISTRICT No. 2—^bBaca, Bent, Cheyenne, Crowley, Custer, Douglas, Elbert, El Paso, Fremont, Huerfano, Kiowa, Kit Carson, Las Animas, Lincoln, Otero, Prowers, Pueblo and Teller counties.

DISTRICT No. 3—^cChaffee, Delta, Eagle, Garfield, Lake, Mesa, Park, Pitkin, Rio Blanco and Summit counties.

DISTRICT No. 4—^dAlamosa, Archuleta, Conejos, Costilla, Dolores, Gunnison, Hinsdale, La Plata, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan and San Miguel counties.

On August 2nd, 1928, all former Departmental orders of temporary transfers from one district to another were vacated and in lieu thereof the following temporary changes in the different districts were made by order of the Commissioner of Mines, to-wit:

^aAll of the county of Summit and that part of Park County lying north and west of a line drawn from the southwest corner of Jefferson County to the southwest corner of Park County were temporarily transferred from District No. 3 to District No. 1.

^bThat part of said Park County lying south and east of said line was temporarily transferred from District No. 3 to District No. 2.

^cThat part of Gunnison County in the extreme northwest corner and lying north of the 39th degree of latitude, that part of Saguache County lying south and east of the Continental Divide and all of the counties of Mineral, Rio Grande, Conejos, Alamosa and Costilla were temporarily transferred from District No. 4 to District No. 3.

^dAll of the counties of Mesa and Delta were temporarily transferred from District No. 3 to District No. 4.

The remainder of all said districts to be left intact as now established by law until further changes are made by order of the Commissioner of Mines, or by the legislature of the State of Colorado.

INTRODUCTION

The activities of the Bureau of Mines during 1931 were confined to the usual routine, no funds for any special work being provided.

The four inspectors visited practically all of the operating metal mines, quarries, mills, smelters and railroad tunnels at least once during the year. Most of the larger operations were inspected more than once. The object of these inspections is to eliminate, as far as possible, unsafe conditions and practices in the operation of such properties. In general, this work meets with the lively cooperation of the operators.

The Commissioner and Inspectors are anxious to help the mining industry in every legitimate manner and wish to be called upon whenever their services can be used.

Inquiries regarding the mines and mineral resources of the state and questions regarding the demand and market for less common mineral products are constantly coming into the Bureau. An earnest endeavor is made to furnish the information desired. Helpful cooperation is often received from the Colorado Geological Survey, the United States Bureau of Mines and the United States Geological Survey.

The Commissioner takes this opportunity of expressing his appreciation of the loyal and efficient services that have been rendered by the entire personnel of the Bureau during the past year.

METAL MINING IN 1931

In common with other states the mining industry of Colorado has felt the detrimental effects of the prevailing economic depression more keenly during the year 1931 than at any previous period in its history. The heavy decrease in the total mineral production of the state for the current year is obviously due to the abnormally low price of metals and not to lack of ore.

The principal base metals of Colorado are lead and zinc, together with a fair percentage of copper, all of which carry more or less values in gold and silver. The market price of the baser metals, reaching the lowest ebb since the close of the World War, caused the suspension of a great number of the larger producers. While it was possible for such mines, well equipped with up-to-date concentrating plants, to operate at a small profit, many very wisely, in keeping with good business principles, suspended operations until the market price of such metals should advance to a figure under which they could operate at a profit. However, several mines carrying a good percentage of gold continued to operate in spite of prevailing adverse conditions.

It naturally follows from conditions as outlined in the foregoing that there will be a material decrease in the baser metals, which, in my opinion, will be in the neighborhood of 65 per cent. This cannot be attributed to any cause other than the decline in the market price of metals.

This contention is borne out by the fact that, during the period of the suspension of the properties mentioned, the managements in nearly all cases are spending enormous sums in new developments, equipment and preparatory work in anticipation of enormous future production as soon as the metal market approaches normal conditions.

Thus, the greater activity in reference to production was confined to mines where gold was the predominant value, and it is cheering to note that the total production of the state will show a material increase in gold, ranging between 8 and 10 per cent over the production of the previous year.

Cripple Creek has held its own, and there has been a decided increase in gold production from Boulder, Gilpin, Park, Chaffee, Lake, La Plata, Ouray, Pitkin, San Juan and San Miguel counties.

From numerous letters received by this department from eastern correspondents, it seems that the idea prevails that Colorado is an essentially silver-producing state, a reputation which it obtained in former years and one which it would easily regain

if silver were restored to its rightful position as a world monetary metal. This thought has given rise to the belief that Colorado ranks low in the production of gold. Nothing could be more erroneous than this latter contention.

Nothing is more alluring than gold, and, Colorado being a potential gold-producing state whose average rating since the beginning of the present century in gold production is second only to California, it is difficult to understand why it has not been more extensively advertised in that particular.

When one speaks of Alaska it is thought of in terms of gold, simply because people of that territory are alive to the fact that gold is the most attractive medium of advertising.

In the last decade Colorado has ranked about even with Alaska in gold production, and, as a matter of fact, during the first eight years of the past decade, 1921 to 1928 inclusive, Colorado's production of fine gold in the aggregate exceeded Alaska by 42,030 ounces, as shown by the figures published by the United States Bureau of Mines and the American Bureau of Metal Statistics.

It is almost impossible for any person who is not familiar with such conditions to conceive the vast amount of ore running from \$3 to \$20 per ton in metallic values, principally gold, that can be found in the mines that were shut down many years ago when the freight and reduction charges made it impossible to ship such a grade of ore with any hope of profit.

Advancement in science has completely changed the metallurgical situation, so that it is now possible to handle profitably such low grade ores. In confirmation, it may be cited that Cripple Creek ores running less than \$5 a ton can now be mined, shipped to the Golden Cycle mill at Colorado Springs and treated at a profit.

Colorado offers a fruitful field for capital seeking investment in gold-producing properties, and it is really difficult to understand why its gold districts, and there are scores of them throughout the state, have been so sadly neglected.

CONDENSED REVIEW OF MINING DISTRICTS

DISTRICT NO. 1, by George Becker

During the year 1931 there were 254 inspections made on properties employing a total of 2,674 men at the time of the inspections. This does not include 1,000 or more men employed at the different plants in Denver where they manufacture a product from clay, produced from the clay mines adjacent to Denver.

Due to the continued low price of silver, lead, zinc, copper and tungsten, the mining industry has suffered severely in properties where the values of these metals predominated and, as a consequence, they were forced to suspend operations. Only where gold values predominated were they able to operate with any degree of success. There has been a noticeable increase in gold production over 1930, especially in the Alma district, due mostly to new development. Judging from the numerous inquiries for metal mines, and the new organizations under way, and those just getting started, it would seem that the coming year will show a still greater increase in production and employment.

Many favor the consolidation of the smaller mines with adjoining mines into a larger group, making it more suitable to develop them under a united system and under one management. In this way the small mines now lying idle could be operated successfully.

Boulder County—Tungsten mining was confined to a little development work and upkeep by the Wolf Tongue Mining Co. and the Tungsten Production Co. Due to the low price of tungsten and no market, all other operations were suspended.

There was more activity shown in gold mining throughout the county, due mostly to lessees; the tonnage was doubled and the values were better than in 1930.

The Alaska Tunnel, near Ward, is one of the principal projects under way. Their objective is to intersect the B and M veins and develop them. When this is accomplished it should become a successful producer.

The United Mines Co. is developing a group of mines in the Sunshine district, with encouraging results, under the management of M. S. Brandt.

The Potosi mine in the Caribou district is being developed by the Potosi Caribou Mining Co. with good results, under the management of J. A. F. Durocher-Stone.

A small amount of fluorspar was mined in the Jamestown district.

Clear Creek County—Many small operations were in progress throughout the year in the various mining districts of this county, especially those where gold values prevailed.

The Mattie mine and mill, operated by the Mattie Consolidated Mines, Inc., R. R. Mitchell, Manager, produced 75 tons of mill ore daily and some crude smelter ore. They have developed new ore bodies, showing ore in sight sufficient to conduct operations for some time to come. Due to shortage of water for power, they do not operate at capacity during the winter months.

The Centennial mine and mill have been operated successfully during the year by the Western States Mining Co., under the management of John E. Martelon.

The Lincoln mine was operated by the Tarheel Mining Co., Geo. R. Sanders, Manager. Development work has shown new ore bodies of smelter ore, assuring operations for some time to come.

The Chain O'Mines, Inc., is developing the Patch ore chute through the Argo tunnel, and on the tunnel level with encouraging results.

Gilpin County—It was in this county in July, 1859, that the first lode claims in Colorado were discovered, and the mines have been in continuous operation since that time.

The Chain O'Mines and mill, operated by the Chain O'Mines, Inc., Dr. Wm. Mark Muchow, President and Manager, was the largest producer and employer in the county, mining and milling 1,500 tons of ore daily. The mill is one of the largest and most up-to-date plants in the state and is a good illustration of what can be done in mining and milling low grade ore. The ore bodies already developed assure operations for years to come.

The Perigo mine and mill have been operating continuously during the year, mining and milling 50 tons of ore daily under the management of Nels Olson. There is ore in sight for a considerable length of time to come.

The Pittsburgh mine and mill have been operated by the Ute Mining Co. The mill was operated part time on ore from the mine and dump, with good results.

The Saratoga mine was operated by the Saratoga Gold Mines, Inc., P. J. Ragooland, Manager, producing smelter ore. Just recently it has been equipped with a new headframe, electric hoist and air compressor, with a view of making a larger production.

The Great Mammoth mine was operated by the Gold Patch Mining Co., Thomas G. McGrath, Manager. The ore produced

was milled in what is known as the dump mill, near Blackhawk, with good results.

The Egyptian, Bullion and Gold Cup mines have been doing development work during the year, showing new ore bodies in new territory. There was also considerable activity in placer mining, with good results.

Grand County—This county has a very large undeveloped mineralized area, showing the most extensive outcroppings of fissure veins in the state. The territory to the south of Fraser and the head of Williams Fork and Jones Pass offers one of the best fields for the prospector in Colorado.

The Mt. Vasquez mine, owned and operated by J. D. Milliken, shows one of the largest outcroppings of mineralized fissure veins in the state and, with proper development, this mine should become one of the largest producers in Colorado.

This county has not received the attention it deserves.

Jackson County is noted for its copper, lead and zinc deposits. Considering the small amount of development work that has been done, this county has a good showing. The values justify further development.

There are large fluorspar deposits, and the spar is of the best quality.

Jefferson County—This county is noted for its large clay deposits and the clay is of the best quality. The manufactured product is shipped all over the world. The non-metallic branch of the mining industry is increasing. The State Mine Inspectors have as much work in looking after the safety conditions in clay mines and plants as they have in many of the metal mines.

Larimer County—The Manhattan district has a wonderful surface showing of gold values. The small amount of development work that has been done reveals well defined fissure veins, indicating rich deposits of gold. This district is worthy of investigation.

Moffat County—This county has a number of prospects which show well defined fissure veins, carrying good values in complex ores. These would become good producers if there were a market established to encourage the mining of this character of ore. There is a large area to the north and northwest of Craig that contains rich placer gold. The placer mines that operated here this season were successful owing to the use of portable screening and washing machines, with steam shovels and dragline scrapers.

Park County—This county showed much activity and an in-

crease in gold production over 1930. From present indications, 1932 should be still better.

The London mine was operated by the London Gold Mines Co., S. G. Gateley, General Superintendent. This mine has a record of having produced high grade gold ore for over 40 years, and at times was considered worked out. With deeper development work they have opened up larger bodies of ore and better values than near the surface. There is every indication that the mine will produce for years to come.

The American mine, operated by W. A. Ellis, President and Manager, has recently been equipped with a new shaft and is producing a high grade gold ore. The new ore bodies being developed assure production for some time.

The Fairplay Gold Mines, Inc., operating the North London mine and mill, Frank Briscoe, Manager, is producing mill ore from the mine and the mill is operated part time with good results.

The Orphan Boy mine, operated by A. E. Moynahan, produced a shipping ore with good results. Ore in sight assures production for some time.

The London, Option, Opher, Mosher, Weber, Sweet Home, No End and Oliver Twist mines were all doing development work during the year, with good results.

Routt County—This is one of the most highly mineralized counties in the state. The district in and around Hahns Peak has been overlooked by the prospector. Judging from the amount of placer gold produced at the base of Hahns Peak, I believe that rich gold veins will be found in that vicinity, with proper prospecting. There were three mines in operation part time this year.

Summit County—This county was harder hit than any other in my district by the slump in metal prices. There is a large available tonnage of complex ore in the various districts in this county.

The Royal Tiger Mines Co., operating the Tiger mine and mill, John A. Traylor, Manager, remodeled their mill during the summer to a 500-ton daily capacity plant. They resumed operations in September on gold ore from their Cashier mine, with good results. The ore developed assures operations for years to come.

The placer mines that operated with good results were the Blue River dredge, Washington, Bemrose, McNulty and You Be Dam. For six miles along the Blue River above Breckenridge the district contains very rich deposits of placer gold and is worthy of investigation.

Reports from prospectors in the various counties are encouraging, indicating that they have met with success in both lode and placer operations. There has been a noticeable increase in the number of new locations made during the year.

DISTRICT NO. 2, by Herrick McLeod

Custer County—The mining of silver-lead was at a standstill in this county in 1931 on account of the low price of these metals. Under favorable market conditions a large tonnage of silver-lead ores could be produced in the Terrible, Bull Domingo, Geyser, Racine Boy, Maverick, Pocahontas, Humboldt, and other mines within a few miles of Silver Cliff.

The Hector mine, near Querida, produced \$800 in gold in the early part of the year, from ore which was run through an arrastra. The owners, Martin Galusha, Bert Galusha, and Henry Cobbe, have granted a lease to Blake H. McElvain and Charles Johnson. The Western Development Company has erected a mill building and installed some mill machinery on the property. It is hoped the mill will be completed and in operation before next summer. A large tonnage of milling ore is available in the mine.

The Cloverdale mine was operated in the summer and fall of 1931 by the Cloverdale Mines Company, under management of W. B. Porch. The property is located on Eagle Peak, ten miles west of Hillside. It embraces a group of twenty-one mining claims, which are being explored by a crosscut tunnel. The tunnel has been driven a distance of 1,200 feet. It cuts the several veins encountered so far at depths ranging from 500 to 1,000 feet from surface. When extended, other veins will be cut at greater depths. The veins that have been explored vary in width from three feet to over nineteen feet, and all show fair milling grade values in gold. The company owns a hydro-electric power plant, located about a mile from the tunnel portal. A small flotation mill was installed late in the season. After one day's full run it was destroyed by fire. It is reported that the heads into the mill gave assay value of \$12 per ton in gold. The company plans to build a new mill as soon as weather conditions permit. This mine may become a great gold producer.

A deposit of vermiculite was opened in October, 1931, on the Sparling ranch, in Boneyard Park, by Non-Metallies, Inc. A force of twenty men is employed. The product is shipped to George B. Smith Chemical Works Company, Springfield, Illinois, at the rate of 200 tons a month.

Douglas County—A large production of fire clay, silica, plastic clay, and limestone was made in 1931.

El Paso County—Two limestone quarries, one lime kiln plant, one silica clay mine, a sandstone quarry, and the ore reduction plant of the Golden Cycle Corporation, known as the Golden Cycle mill, were in operation in this county.

The Golden Cycle mill treats all the ores produced in the Cripple Creek mining district, and a large tonnage from other parts of the state. It is a large and up-to-date plant, and is a convenient market for Cripple Creek ores, with low freight and treatment rates.

Fremont County—The production of fire clay, silica, gypsum, mica, feldspar, limestone, dolomite, travertine, marble, building and monumental granite, and the manufacture of zinc oxide, cement and plaster products, furnishes employment for many men in this county.

The Colorado Portland Cement Company's plant was in operation nine months in 1931. It produced 2,500 barrels of cement a day.

The Empire Zinc Company's plant was in continuous operation during the year, and manufactured 25 tons of zinc oxide per day.

These two plants gave employment to 200 persons.

The Diamond Fire Brick Company operated its quarries and brick plant about half-time. The plant has a capacity of 15,000 to 20,000 bricks per day.

E. E. Zingheim shipped a car of beryl crystals from his quarry five and one-half miles from Echo.

The limestone quarries in Fremont County produced a greater tonnage than in the preceding year.

Huerfano County—The Standard Fire Brick Company, of Pueblo, owns and operates a fire clay mine, and a silica-sandstone quarry, near Vulcan. A large tonnage of fire clay was shipped to the company's plant in Pueblo.

Las Animas County—The Trinidad Brick and Tile Company owns and operates a shale pit and brick plant near Trinidad. The brick plant was in operation about half-time. It has a capacity of 15,000 to 20,000 bricks per day.

Otero County—The La Junta Clay Products, Inc., owns and operates a shale pit and brick plant in La Junta. The plant operated part time. It has a capacity of 20,000 bricks per day.

Pueblo County—Pueblo County has one limestone quarry, one sandstone quarry, six clay mines, one clay kiln plant, one

clay grinding plant, one mica grinding plant, and two brick plants.

The Standard Fire Brick Company's plant has a capacity of 60,000 bricks per day. This company's accident rate should be low. No expense is spared to make working conditions safe.

The Summit Pressed Brick and Tile Company's plant has a capacity of 20,000 bricks per day.

Teller County—More than one-half of the gold produced in Colorado in 1931 came from the mines of the Cripple Creek district. A total of approximately 300,000 tons of ore from these mines was treated at the Golden Cycle mill in Colorado Springs. The value of metals extracted was \$2,394,501 for gold, and \$2,321 for silver.

The usual dividends were disbursed in 1931 by the Cresson Consolidated Gold Mining and Milling Company, the Granite Gold Mining Company, and the United Gold Mines Company. Owing to the wise policy of these companies, of keeping prospecting and development work going all the year, the mines are in shape to maintain or increase production in 1932.

Fortunes have been made by small operators on leased blocks. Every year this district produces a crop of small fortunes, of which no record is kept, and no mention made, except in total production.

Much surface prospecting has been done in the past year, with the result that several veins showing pay values have been uncovered. The prospectors are poor men, who are handicapped in the development of their prospects by lack of funds to pay for labor and equipment. The opportunity offers for moderate investments to help these men to carry on.

Many new operations, begun this year, have resulted in production. The Kolmon Mining and Leasing Company, John Kolmon, Superintendent, reopened the Anchoria Leland mine, after a shutdown of over twenty years, and is making steady production.

L. A. Schoen and Company have opened a body of ore on the Ida May vein, owned by the Elkton Company. A recent shipment gave returns of \$53 a ton.

The Colorado Gold, Inc., Evan J. Williams, Superintendent, has opened a stope of ore 250 feet long on the Last Effort vein, at a depth of 200 feet from the surface. Mr. Williams reports that the grade of the ore improves with depth. This will produce a large tonnage in 1932.

Jerry Johnson Gold, Inc., Al Osberg, Superintendent, has recently acquired leases on the Jerry Johnson, Forest Queen, and

the W. P. H. properties. Mr. Osberg has operated the Jerry Johnson for some time, and has made steady production. Operations in the Forest Queen and W. P. H. will result in increased production.

Block leasers, too numerous to mention, operating on the properties of the Cresson Consolidated Gold Mining and Milling Company, the United Gold Mines Company, the Portland Gold Mining Company, the Stratton Cripple Creek Mining and Development Company, and Le Claire Mines Company are making steady production. A carload shipment from the Harry Bennett lease on Portland ground gave returns of \$201.60 a ton.

Extensive and important development work has been done by Cameron Gold Mines, Inc., Cripple Creek Coalition, Fanny Fern Mines, Inc., Moose Mine Operations, Inc., Benjamin F. Hill, and others.

The Cameron Gold Mines, Inc., S. R. Trevethan, Superintendent, sunk a shaft from surface to a depth of 200 feet on the Cameron Townsite. A crosscut was driven to the Mitchell vein, which has been explored by 100 feet of drifting, disclosing pay values all the way.

Cripple Creek Coalition, also under the direction of S. R. Trevethan, has installed machinery on the main shaft of the Little May. As soon as the work of retimbering is completed, ore will be broken from bodies which lie exposed in the lower levels. This mine has lain idle for thirty years.

The Fanny Fern Mines, Inc., under the direction of W. A. Kyner, has operated a lease on Block 8, School Section, and also leases on the Molly W., Mohawk, and part of the Isabella ground. A steady production has been made during the year from the Block 8 lease. One carload settled for \$96 a ton. More than 400 feet of drifting was done along the Little Basalt Dyke, running through the Molly W. and Mohawk, and pay values were encountered in a number of places.

Moose Mine Operations, Inc., Frank J. Busch, Superintendent, is driving a crosscut from the twelfth level of the Cresson mine, to explore the Moose Basalt Dyke, at depth. The Moose mine has lain idle since 1904. Prior to that date it produced 5,100 tons of ore, which had an average value of \$103 per ton.

Benjamin F. Hill has done over 1,200 feet of development work in his leased blocks on the Granite property, and has opened up a large body of ore of better than average grade.

There are many other mines in the district from which fortunes were taken in the early days, when freight, treatment and mining costs were much higher than at present. Bodies of low-grade ore were left in them which, under present conditions,

could be mined at a profit. There is also a large acreage in the producing area which has never been explored. It has been truly said that, "If some of the prospects now lying neglected in the Cripple Creek District were located in some remote and inaccessible region, their discovery would cause a stampede of gold-seekers." Mining property can be purchased now at a fraction of the price formerly asked for it, or can be leased on reasonable terms.

The superintendents of the larger mines, Alfred H. Bebee, of the Cresson, Henry Christensen, of the Granite, J. S. Anderson, of the Vindicator, Clayton Kissell, of the Portland, and William F. Peterie, of the Rose Nicol, have done good work along safety lines. The use of goggles and protective hats has been encouraged. It is the opinion of those who know the circumstances that the lives of two men, and perhaps of one other, were saved this year by the use of protective hats.

The mining industry in this county furnishes employment for 700 men.

DISTRICT NO. 3, by R. J. Murray

Chaffee County—This county can, I believe, hold its own with any of the lime-producing counties of the state. The C. F. and I. quarry at Monarch produced from 800 to 1,000 tons of lime daily, and it is equipped to send out 3,000 tons daily when the demand calls for it. The monumental granite quarries have produced considerable stone during the year and have kept two large dressing plants operating. Some fluorspar shipments have been made. A new company has entered the field here within the past few months. They expect to operate mines near Turret, and the mineral extraction will be carried on at the former Salida smelter.

A few mining operations have been carried on this year in this county.

Conejos and Costilla Counties—A great deal of prospecting has been done in these counties during the year. Some good discoveries have been made, which may develop later into mines.

Eagle County—The Eagle mines have kept up a large tonnage, and at times have employed over 450 men. Under the management of R. L. Jones and his assistants, this mine has been developed to a point where unlimited tonnages can be sent out just as soon as metal prices justify.

A large amount of prospect work—sinking, drifting, raising and diamond drilling—has been done on the Liberty mine, under the management of H. H. Wallower and J. N. Dismant.

Garfield County—The famous United States Vanadium mine and mill, said to be the world's largest producer of vanadium, has operated continuously throughout the year, mining and milling approximately 160 tons daily. Mining operations are under the supervision of Blair Burwell and milling operations under W. L. Anderson.

The Garfield Vanadium Corporation has carried on development work on their group of properties.

The Holly Sugar Corporation produced a fair tonnage of lime rock during 1931.

Gunnison County—The Yule Colorado Marble Company has completed several contracts, among them that of furnishing stone for the Custom House in Denver. This has given employment to a considerable number of men, both at the quarries and the dressing plant. C. F. Haselton is in charge of the entire work.

In addition to the above a number of small operations were carried on at various times in the Yule district.

Lake County—The largest producer in this county was the world-famous molybdenum mine at Climax, which has produced a large tonnage continuously and has found a market for its product. Under the management of W. J. Coulter, the Philipson tunnel was completed. A new 3,000-ton crushing plant, said to be one of the most modern in this country, was also finished. A 100-ton trip of ore can be loaded in approximately four minutes at the chutes and dumped in the crushing plant in four minutes. Space forbids mentioning the new work and also the equipment installed at this property during the year.

The Ibex mines, under the management of William Bowden, are working on the block leasing system, employing from 30 to 50 men.

Mr. Frank Lanphier, manager of the Yak mines, before his untimely death, planned new development work which would have put the Yak back on a shipping basis. Leadville has lost a splendid citizen and a high class mining man. It is said that a new company is to take over the Yak.

Cramer and Company are constructing a new cyanide mill at the head of California Gulch to treat ores from seventy acres of ground controlled by this company. George Argall is manager for a local and eastern company that is diamond drilling in the Rex group in Iowa Gulch. Various tunnels are being run from South Evans Gulch into Johnny Hill and to the east to Bald Mountain. A new shaft is being sunk by the Hahnewald Brothers near the Garbutt. John Cortellini is doing some prospect work, while sending out shipments of a fair grade of gold ore

from the Venir lease. A small amount of work has been done in the Twin Lakes district. Space forbids my mentioning a large number of small operations in the Leadville district. A number of men were busily engaged in placer mining in California Gulch during the summer.

Lake and Chaffee Counties—The Belle of Granite, Hattie Jane, Granite tunnel, together with several prospectors, are busy in the southwestern end of Lake County. The Belle of Granite, owned and operated by William Burns of Salida, has installed a new 50-ton mill and made several test runs. They have shipped several carloads of ore to the Golden Cycle, which ran from 13¼ ounces to over 4 ounces in gold per ton.

The Granite tunnel, in charge of Clarence B. Hersey, has sent out several carloads of a medium grade of gold ore to the Golden Cycle. These ores are being taken out through the development of an immense body of milling ore which this company is blocking out for the future.

Mineral County—A small amount of new prospect work is being done in various places throughout the county. The Peerless Clay and Mineral Company has been sending out shipments under the direction of Ben Birdsey.

Pitkin County—The Midnight and Hope mines have been operated almost continuously. The Midnight has completed its mill and has run it on small tonnages. Some copper ore, together with silver content, was opened up in the Hope tunnel.

A streak of silver-lead ore was opened up on Independence, on the side of the highway, which ran 100 ounces silver and \$3 in gold when shipped.

The Independence Group, under the management of D. P. Rohlfing, has carried on considerable development and prospect work and has sent out a few carloads of a low grade gold ore.

A new prospect has been opened up near Redstone. Fairly good gold values have been taken from a large vein in the Coal Creek district, and a number of locations have been made. One company, composed of local and eastern people, has under construction a mill for the treatment and separation of ores.

Rio Grande County—The Miser and Guadalupe properties have been worked under the management of Berne H. Hopkins. Some experimental work has been done at the mill and the necessary changes made. New development work has also been carried on. Small operations were under way at Stunner and Platoro. Several examinations have been made of the Little Annie group, formerly under lease to Pickens and Wiley. It has been

rumored that a large concern has negotiated for the bond and lease on this group and that work will be started during the coming summer.

Saguache County—The Orient mine kept up a continuous tonnage shipment until late summer of iron ores to the company's plant, C. F. and I., at Pueblo. A new tunnel is being driven to facilitate the handling of these immense bodies of iron ore, under the direction of George Botsford. This tunnel is 7x8 feet and is to be driven approximately 2,300 feet.

A few men are leasing in the Bonanza district. Several prospectors are known to be combing the Sangre de Cristo range east of Villa Grove.

DISTRICT NO. 4, by John F. Clougher

Although business in general has been confronted with one of the most critical periods of upset conditions, activities in the basic industry of metalliferous mining in District No. 4 during 1931 have not been adversely affected in the same ratio as have most all other lines of business.

Archuleta County—During the present year activities were confined to developments and exploration of promising looking veins on different groups of mining claims within the confines of this county.

Dolores County—Operations in 1931 were conducted on six different mining properties, with the major activity on the Rico-Wellington mine on which the large development tunnel, designated the St. Louis tunnel, has been driven a distance of nearly 5,000 feet from its portal within the past 13 months. Quite considerable underground development is planned for 1932.

Gunnison County—Ten different mining properties were in active operation during the present year, and a surprising number of examinations were made by mining men in areas with favorable indications for big and profitable mineral production.

Hinsdale County—Operations in 1931 consisted mainly of making improvements and extending underground development on four different base metal mines, and leasing operations on three different properties having possibilities of fair ore tonnage production with high values in gold and silver.

La Plata County—Eight different mining properties were in active operation during 1931. In addition, quite a few properties which had lain idle for some years were reopened and examined by prospective purchasers, with the result that negotiations are now pending for the acquisition of three of said properties, which several years ago produced ore with unusual high values in gold.

Montezuma County—Small scale operations were conducted on the Euclid Group, near the head of the West Mancos river, and on the Tenderfoot Group near the head of the East Mancos river, during the past summer months.

Montrose County—Preparatory work for gold placer operations on an extensive scale in the vicinity of Naturita, is in progress. Machinery, equipment and supplies are being transported to the property, and it is planned to have this project under active headway in the early part of 1932. Considerable in the way of annual assessment work was done in the carnotite fields in this county during 1931.

Ouray County—Ten different mining properties were in active operation in 1931. Milling operations have been conducted by the King Lease, Inc., at the Camp Bird mine, and by the Banner American Mining Company. Of much interest is the opening up of a good sized ore body with good values in gold, on the Barstow mine, in this county.

San Juan County—Active operations were conducted on ten different mining properties during the present year, also, some small scale leasing operations on mine and mill dumps. The Shendoah-Dives mine ranked highest in the number of men employed, and its production of ore thruout 1931 ranged from 500 to 600 tons daily.

San Miguel County—Major activities in this county during 1931 include operations in lode mining on five different base metal properties, and on two groups having vanadium ores. Besides such lode activities, there has been gold placer operations on five different properties in this section this year.

New mill construction in District No. 4 during 1931 comprises one of 25 tons daily capacity with concentration and amalgamation process, on the Old Lot mining property in Gunnison county, one of 50 tons daily capacity with concentration process, on the Texas Chief mining property in La Plata county, and one of 100 tons daily capacity with concentration and flotation processes on the Banner American mining property in Ouray county; also, on this property there has been erected this year, a power plant with energy developed by a 550 h. p. Diesel engine.

Other major improvements made on mining properties in this district this year consist of new buildings, and the installation of mining machinery for the driving of the tunnel, two miles in length, on the Sunnyside mine property in San Juan county; the erection of new buildings and a new electric power line, and the installation of new mine machinery on the Lead-Carbonate property in said county; the erection of an aerial tramway on the Shoemaker & Nunn property in San Miguel county; the erection of new mine buildings and the installation of additional mine

equipment at the site of the big St. Louis tunnel, on the Wellington property at Rico; the erection of new buildings and the installation of new mine machinery on the Gold Cup property in Gunnison county; the heavy machinery and equipment just recently transported to the vicinity of Naturita, Montrose county, for placer mining operations, and the installation of new mine machinery and equipment at the Barstow mine in Ouray county.

As additional evidence of an increasing interest in mining in this district may be cited the surprisingly large number of investigations made by representatives of capital, and the reopening of properties long dormant, by individual owners, and lessees, during this year. With the approach of normal economic conditions, the basic industry of mining, reinforced by experiences of this era, will be found to occupy a secure and more commanding position than for several years past.

NONMETALLIC MINES

The operation of nonmetallic mines and quarries during the past few years in Colorado has developed into one of the state's most important industries. Any demand for building or monumental stone of every kind, such as granite, marble, onyx, travertine and so on, can be fully supplied from their stupendous stores in various parts of the state. Many quarries have been opened along the eastern mountains, the Arkansas and Platte rivers, in Gunnison, Pitkin and in other counties of the western slope. Building sands and gravels are found in abundance along all rivers and streams.

The clay deposits of Colorado for all purposes are unexcelled. It is highly improbable that any desired industrial clay cannot be found within the state's confines. Feldspar, fluor-spar, lime, gypsum and the like are found in large quantities. Enormous oil shale deposits, also bitumen, asphalt and tar sands exist in several of the western counties. Mica, jefferisite, muscovite and other insulating materials are widely distributed throughout the state.

During the past year 74 quarries and pits were in active operation in Colorado, as shown in the appended table of "Operating Quarries and Clay Pits for 1931." They produced upwards of \$1,000,000 and gave employment to hundreds of men.

The name, location and character of products of the various quarries and pits appear in this report under the heading "Operating Quarries and Clay Pits" and more detailed mention in the "Review of the Mining Districts" by the state mine inspectors.

HISTORICAL NOTE

The Bureau of Mines of the State of Colorado was established by an act of the Tenth General Assembly, approved March 30, 1895. This act repealed a previous act creating an "Inspector of Metalliferous Mines," which was passed in 1889. The Bureau of Mines law established the office of Commissioner of Mines, provided for in the State Constitution, and charged him, among other things, with the supervision of metal mine inspection and the enforcement of laws relating to safety and health in metal mines. Subsequently this was broadened to include "any ore mill, sampling works, smelter, metallurgical plant, rock quarry, clay pit, railroad tunnel, rock excavation or mine of whatsoever kind or character, except coal mines." The Commissioner of Mines was also charged, "as he has opportunity and means," to collect mineral specimens and exhibit the same, to collect books relating to mining and geology, to collect and preserve data regarding mining methods, mining costs, milling, metallurgy, geology, mineral deposits of all kinds, and so on. Aside from the purchase of the Elsner collection of minerals, very little "opportunity and means" has been granted to the Commissioners for anything except inspection work. The present activities of the Bureau of Mines are treated elsewhere in this report.

COMMISSIONERS OF MINES

Harry A. Lee.....	May 11, 1895-May 10, 1903
E. L. White.....	May 10, 1903-May 10, 1907
T. J. Dalzell.....	May 10, 1907-May 10, 1911
T. R. Henahan.....	May 10, 1911-May 10, 1915
Fred Carroll	May 10, 1915-June 1, 1919
Horace F. Lunt.....	June 1, 1919-June 1, 1923
John T. Joyce.....	June 1, 1923-June 1, 1927
John T. Joyce.....	June 1, 1927-June 1, 1931
John T. Joyce.....	June 1, 1931-

PUBLICATIONS OF THE BUREAU OF MINES

BULLETINS

- Bulletin No. 1, Recommendations for Safety Appliance in Mining, Harry A. Lee, Commissioner of Mines, 1896.
- Bulletin No. 2, Precious Metal Production for the year 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 3, Mining Laws, Relative to Bureau of Mines Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 4, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1901.
- Bulletin No. 5, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1902.
- Bulletin No. 6, Regulations Relative to the Construction, Equipment and Operation of Metalliferous Mines, Mills and Metallurgical Plants, Recommendations and Mineral Production for 1905, E. L. White, Commissioner of Mines, 1906.
- Bulletin No. 7, Federal and State Laws Relating to Mining, Fred Carroll, Commissioner of Mines, 1916.
- Supplement to Bulletin 7, Mining Laws Enacted by the Twenty-first General Assembly, Fred Carroll, Commissioner of Mines, 1917.
- Supplement No. 2 to Bulletin No. 7, Amendments to the Mining Laws Enacted by the Twenty-second General Assembly, Horace F. Lunt, Commissioner of Mines, 1919.
- Supplement No. 3 to Bulletin 7, Amendments to Laws Relating to Mining Enacted by the Twenty-third General Assembly, Horace F. Lunt, Commissioner of Mines, 1921.
- Supplement No. 4 to Bulletin 7, Amendments to Laws Relating to Mining Enacted by the Twenty-fourth General Assembly, Horace F. Lunt, Commissioner of Mines, 1923.
- Bulletin No. 8, The Oil Shales of Northwestern Colorado, Horace F. Lunt, Commissioner of Mines, 1919.
- Bulletin No. 9, Mine Safety Standards, Horace F. Lunt, Commissioner of Mines, 1920.
- Bulletin No. 11, Mining Laws of Colorado, John T. Joyce, Commissioner of Mines, 1931.

REPORTS

- Report of Bureau of Mines, Colorado, from its establishment in May, 1895, to November 30, 1896, Harry A. Lee, Commissioner of Mines, 1896.

- Report for the Year 1897, Harry A. Lee, Commissioner of Mines, 1898.
- Report for the Year, 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Biennial Report for the Years 1899-1900, Harry A. Lee, Commissioner of Mines, 1900.
- Biennial Report for the Years 1901-1902, Harry A. Lee, Commissioner of Mines, 1903.
- Biennial Report for the Years 1903-1904, E. L. White, Commissioner of Mines, 1905.
- Biennial Report for the Years 1905-1906, E. L. White, Commissioner of Mines, 1907.
- Biennial Report for the Years 1907-1908, T. J. Dalzell, Commissioner of Mines, 1909.
- Biennial Report for the Years 1909-1910, T. J. Dalzell, Commissioner of Mines, 1911.
- Biennial Report for the Years 1911-1912, T. R. Henahen, Commissioner of Mines, 1913.
- Biennial Report for the Years 1913-1914, T. R. Henahen, Commissioner of Mines, 1914.
- Biennial Report for the Years 1915-1916, Fred Carroll, Commissioner of Mines, 1916.
- Biennial Report for the Years 1917-1918, Fred Carroll, Commissioner of Mines, 1919.
- Annual Report for the Year 1919, Horace F. Lunt, Commissioner of Mines, 1920.
- Annual Report for the Year 1920, Horace F. Lunt, Commissioner of Mines, 1921.
- Annual Report for the Year 1921, Horace F. Lunt, Commissioner of Mines, 1922.
- Annual Report for the Year 1922, Horace F. Lunt, Commissioner of Mines, 1923.
- Annual Report for the Year 1923, John T. Joyce, Commissioner of Mines, 1924.
- Annual Report for the Year 1924, John T. Joyce, Commissioner of Mines, 1925.
- Annual Report for the Year 1925 was fully prepared but because of lack of funds was not printed. The manuscript is on file in the office of the State Bureau of Mines.
- Annual Report for the Year 1926, John T. Joyce, Commissioner of Mines, 1927.
- Annual Report for the Year 1927, John T. Joyce, Commissioner of Mines, 1928.

Annual Report for the Year 1928, John T. Joyce, Commissioner of Mines, 1929.

Annual Report for the Year 1929, John T. Joyce, Commissioner of Mines, 1930.

Annual Report for the Year 1930, John T. Joyce, Commissioner of Mines, 1931.

At the time this report goes to press, there are available for distribution copies of the Annual Reports for 1921, 1922, 1923, 1926, 1928, 1929 and 1930, and Bulletin 11. The price of Bulletin 11 is 50 cents (coin), all other available publications are free. The publications not mentioned in this paragraph are exhausted, but copies may be found in many of the public, state and college libraries throughout the country.

Note—The Colorado Geological Survey has published a number of geological reports and maps, a list of which may be obtained from Dr. R. D. George, Head Geology Department, University of Colorado, Boulder, Colorado.

Acknowledgment

Thanks are due the United States Bureau of Mines for the assistance rendered by Mr. E. H. Denny and Mr. E. A. Anundsen in preparation of the Rules and Regulations contained in Bulletin 11, published by this Department, in reference to the protection of life, limb and health of employees and of property.

PRODUCTION

Gold, Silver, Copper, Lead and Zinc

The total production of gold, silver, copper, lead and zinc from the mines of Colorado for the calendar year ending December 31, 1931, amounted to \$7,735,361, divided among the various mining counties as shown by the tabulation thereof inserted in said Table No. 1 in this report. The six leading counties in value were Teller first, Eagle second, San Juan third, Park fourth, Lake fifth, and Gilpin sixth.

Counties which produced \$100,000 or more in any of the aforesaid metals, apart from all others, are given below and classified in the order of their monetary value:

Gold: Teller, Park, San Juan, Gilpin, Ouray and Lake; silver, Eagle and San Juan; copper, Eagle; lead, Eagle and Lake; zinc, Eagle and Lake.

Miscellaneous

The United States Vanadium Corporation of New York operated their mine and plant at Rifle steadily throughout the year, producing 995 tons of 86.9 per cent vanadium concentrates from 57,090 tons of crude ore. This is one of the largest enterprises of its kind in the world.

The Climax Molybdenum Company of New York is operating what is now acknowledged to be the largest deposit of molybdenum ore in the world. They milled 434,104 tons of 100% molybdenum from 4,946,000 tons of crude ore.

Acknowledgment

Thanks are due to Scott Turner, director, and C. W. Henderson, engineer, of the United States Bureau of Mines, for the production statistics regarding the common metals.

TABLE I
PRODUCTION OF THE PRINCIPAL METALS IN COLORADO IN 1930 AND 1931^a

County	GOLD ^a				SILVER ^b				COPPER				LEAD				ZINC				TOTAL VALUE		Increase or Decrease	County
	1930		1931		1930		1931		1930		1931		1930		1931		1930		1931		1930	1931		
	Fine Ounces	Value	Fine Ounces	Value	Fine Ounces	Value	Fine Ounces	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value				
Adams	102.80	\$ 2,125	88.01	\$ 1,716	13	\$ 5	13	\$ 4												\$ 2,130	\$ 1,720	— \$ 410	Adams	
Arapahoe	5.03	104	10.98	227																104	227	+ 123	Arapahoe	
Boulder	798.90	10,516	1,603.01	31,070	3,304	1,272	3,302	958					4,900	\$ 246	17,000	\$ 646				18,033	32,674	+ 14,611	Boulder	
Chaffee	1,574	76.14	116.53	2,419	1,348	519	53	15	1,500	\$ 195			44,000	2,200						4,488	2,434	+ 2,054	Chaffee	
Clear Creek	4,941.07	102,141	3,716.02	76,817	38,556	14,844	23,669	6,864	23,000	2,990	9,000	\$ 747	184,500	9,225	98,000	3,724	21,000	\$ 1,008		130,208	58,152	— 42,056	Clear Creek	
Custer			31.97	661			409	119							15,000	570					1,350	+ 1,350	Custer	
Denver			23.99	496			2	1													497	+ 497	Denver	
Dolores	416.27	8,005	6.99	124	82,678	31,881	770	223	309,000	40,170			1,355,200	67,760	16,000	608	1,190,000	57,120		205,486	955	— 204,531	Dolores	
Douglas			16.02	331																	331	+ 331	Douglas	
Eagle	5,060.31	117,133	3,560.99	72,872	1,620,574	623,921	1,304,956	404,637	5,849,000	760,370	6,315,000	524,145	5,642,000	282,100	6,684,000	253,992	28,544,000	1,370,112	26,182,000	\$ 994,916	3,153,636	2,249,963	— 903,674	Eagle
Elbert			1.98	41																	41	+ 41	Elbert	
Gilpin	6,768.47	139,710	16,921.01	329,116	21,696	8,353	20,483	6,940	90,300	11,739	100,000	8,300	94,300	4,715	63,000	2,394	7,000	336		164,853	345,750	+ 180,897	Gilpin	
Gunnison	809.94	16,743	442.00	9,137	2,265	872	2,963	859					35,600	1,780	26,000	988	41,000	1,968		21,363	10,984	— 10,379	Gunnison	
Hinsdale			13.01	269				58													327	+ 327	Hinsdale	
Jefferson			1.98	41																	41	+ 41	Jefferson	
Lake	5,044.85	104,276	6,227.03	128,724	618,800	237,468	90,310	26,190	262,000	32,760	34,000	2,822	13,626,000	681,300	3,914,000	148,732	23,038,000	1,105,824	5,793,000	220,134	2,161,623	526,602	— 1,635,020	Lake
La Plata	410.32	8,482	508.00	10,398	2,969	1,143	1,882	546					600	30						5,655	10,944	+ 1,289	La Plata	
Mineral	114.36	2,364			394,044	152,477							148,600	7,430						162,271		— 162,271	Mineral	
Moffat	.84	7	13.01	269	52	20	1		9,000	1,170										1,197	269	— 928	Moffat	
Montezuma			23.99	496			180	52													548	+ 548	Montezuma	
Montrose	1.55	32																			32	— 32	Montrose	
Ourray	7,226.46	149,384	9,703.02	200,579	18,122	6,977	42,293	12,265	26,000	3,330	68,000	5,644	171,000	8,550	382,000	14,516	168,291			233,004	+	64,713	Ourray	
Park	21,872.87	452,142	27,267.04	770,377	11,709	4,508	23,937	6,942	8,100	1,058			328,800	16,440	695,000	26,410				474,143	803,729	+ 329,586	Park	
Pitkin	4.74	98	56.01	1,778	65,522	25,226	30,734	8,914					795,000	39,750	257,000	9,766				65,014	20,458	— 44,616	Pitkin	
Rio Grande	415.54	8,590	53.98	1,116	239	92	87	25					1,500	75						8,757	1,141	— 7,616	Rio Grande	
Routt			4.98	103																	103	+ 103	Routt	
Saguache	550.17	11,373	26.00	517	333,722	128,483	2,812	815	1,234,000	160,420	8,000	664	2,343,000	117,150	74,000	2,812				417,426	4,808	— 412,618	Saguache	
San Juan	31,994.06	661,376	32,204.06	665,716	1,067,496	410,986	414,298	120,146	2,678,000	318,140	1,180,000	97,940	17,788,600	889,430	1,009,000	38,342	19,677,000	914,496		3,254,428	922,144	— 2,332,284	San Juan	
San Miguel	2,201.35	45,506	2,293.99	47,421	87,556	33,709	9,284	2,692	34,100	4,433	5,000	415	1,637,800	81,890	179,000	6,802				165,538	57,330	— 108,208	San Miguel	
Summit	6,642.18	137,306	946.02	19,566	3,496	1,346	3,944	1,145					5,860	2,930	28,000	1,064				141,582	22,016	— 119,568	Summit	
Teller	122,487.05	2,532,032	116,834.17	2,394,501	8,691	3,346	9,005	2,321												2,535,378	2,396,822	— 139,556	Teller	
Total	218,629.82	\$4,517,619	230,673.78	\$4,766,388	4,382,852	\$1,687,398	2,074,591	\$ 601,631	10,514,000	\$1,366,820	7,722,000	\$ 640,926	44,260,000	\$2,213,000	13,457,000	\$ 511,366	72,518,000	\$3,480,864	31,975,000	\$1,215,050	\$13,265,701	\$7,735,361	— \$5,530,340	

¹Actual 11 months figures, with estimate for December

*Includes placer production.

³Average value of metals: Gold, \$20 671 836 per ounce; silver, \$0.29 per ounce; copper, \$0.083 per pound; lead, \$0.038 per pound; zinc, \$0.038 per pound.

*Average value of metals: Gold, \$20.671835 per ounce; silver, \$0.385 per ounce; copper, \$0.13 per pound; lead, \$0.05 per pound; zinc, \$0.048 per pound.

FATAL ACCIDENTS

Underground.

February 1, Jose C. Maestas of Gilman, age 34, unmarried, shoveler, while employed at the Eagle Mines, Eagle County, was hit by falling rock weighing about one hundred pounds. He died from the effect of his injury two days later. Unavoidable accident.

March 31, Peter Larson of Denver, age 36, unmarried, miner, while employed at the Perigo mine, Gilpin County, was killed by falling ninety feet. Larson had been instructed to remove dirt from lagging over raise, and, while punching a hole through dirt with an iron bar, the dirt gave way, precipitating Larson. Carelessness of injured.

July 8, Matt Starr of Silverton, age 35, unmarried, machine-man, while employed at the Mayflower mine, San Juan County, was struck by falling rock, causing him to fall from a ladder a distance of fifty feet. Death resulted from his injuries three days later. Unavoidable accident.

August 26, Ed. T. Morgan, age 37, married, shoveler, while employed at the London mine, Park County, was instantly killed while shoveling ore into chute when rock caved from back. Unavoidable accident.

September 20, Frank Groblnick of Silverton, age 40, machine-man, while employed at the Mayflower mine, San Juan County, was struck by falling rock while standing in the ore chuteway at top of No. 24 upraise, and killed almost instantly. Carelessness of injured.

October 10, Bert G. Cable of Cripple Creek, age 55, married, hoistman and acting foreman, while inspecting Fauntleroy mine, Teller County, was overcome by gas and died immediately. The mine blower was not running when the body was found. Carelessness of injured.

November 6, William A. Wilson of Cripple Creek, age 27, married, miner and timberman, while employed at the Little May shaft, Teller County, was killed by a slab of rock which slid off wall. Unavoidable accident.

November 18, Nicholas Groff of Idaho Springs, age 42, unmarried, mucker, while employed at the Lincoln mine, Clear Creek County, was killed instantly by fall of rock from back of stope. Carelessness of injured.

November 22, Louis Matovinovich of Rico, unmarried, miner, while employed in a metal mine at Rico, Dolores County, was killed by fall of rock from roof, which struck employee on head

and shoulders while he was stooping to reload a drill hole, the charge having failed to explode. Unavoidable accident .

Surface.

November 22, H. S. Knoch of Ouray, age 42, married, electrician, while employed at the Banner American mine, Ouray County, was instantly killed in attempting to connect electric wires for a heater in an engine house, using his bare hands, having on wet boots, and ignoring safety instructions.

Mill.

June 25, Thomas F. Flannery of Gilman, age 58, widower, tailings pond operator, while employed at the Eagle mill, Eagle County, installing a Woods separator cone, fell from a scaffolding about seventeen feet from the ground.

Smelter.

July 21, Albert Johnson, age 35, married, crane helper, while employed at the Canon City zinc plant, Fremont County, was caught between a cable and front end of loaded car. Johnson started following at rear of car, but for some unaccountable reason moved to the front end of car without knowledge of the crane operator and was caught between towing cable and end of car. Carelessness of injured.

Rock Excavation.

July 1, John Wesser of Rosemont, age 39, married, pitman, while employed in an excavation for Rosemont dam, Teller County, was killed by empty bucket when operator brought it back to caterpillar. He died before reaching hospital at Colorado Springs. Carelessness of injured.

September 25, Michael Gioso of Rosemont, age 39, unmarried, slopeman, while employed in dam excavation at Rosemont, Teller County, fell seventy-five feet down face of cut which was made in blasting out granite to reinforce dam. Carelessness of injured in not using safety rope.

TABLE II

DAYS OF EMPLOYMENT IN AND ABOUT MINES, MILLS AND SMELTERS, AND NUMBER OF MEN
KILLED AND INJURED PER 10,000 DAYS OF EMPLOYMENT DURING THE YEARS 1930 AND 1931.

Employment Days of	Killed			Serious Injury (Time Lost Over 14 Days)			Slight Injury (Time Lost Under 14 Days)						
	1930			1931			1930			1931			
	No. of Acci- dents	Rate Per 10,000 Days	No. of Acci- dents	Rate Per 10,000 Days	No. of Acci- dents	Rate Per 10,000 Days	No. of Acci- dents	Rate Per 10,000 Days	No. of Acci- dents	Rate Per 10,000 Days	No. of Acci- dents	Rate Per 10,000 Days	
Underground	530,414	14	.1840	9	.1696	189	2.485	131	2.469	374	4.917	322	6.070
Surface	205,800	2	.0873	1	.0485	49	2.141	42	2.040	73	3.190	84	4.081
Mills	200,796	..		1	.0498	7	.2440	6	.2988	27	.9413	13	.6474
Smelters	92,659	1	.0566	1	.1079	4	.2265	5	.5396	1	.0566	6	.6475
Quarries	153,581	3	.1520	..		43	.2179	20	1.302	118	5.979	46	2.995
Placer Mines and Dredges...	12,186	1	.8820	..		1	.8820	1	.8206	1	.8820	3	2.461

There were two fatal accidents in rock excavations, the inspection of which, under the recent law, was placed under the jurisdiction of this office, and cannot be properly classed as accidents in or about mines or mills.

TABLE III

CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1930 AND 1931.

	Fatal 1930 1931	Serious Injuries (Time lost over 14 days)				Slight Injuries (Time lost under 14 days) 1930 1931		
		Permanent Disability 1930 1931		Temporary Disability 1930 1931				
		Total Disability 1930 1931	Partial Disability 1930 1931	Total Disability 1930 1931	Partial Disability 1930 1931			
UNDERGROUND								
1. Falls of rock or ore from roof or walls.....	9	7	..	..	41	22	74	58
2. Handling of rock or ore—								
(a) Loading at face.....	..	..	..	..	9	16	5	6
(b) Loading at chute.....	..	..	1	1	18	1	30	32
(c) Sledging	..	..	..	..	1	1	7	4
3. Timber or hand tools.....	..	..	..	..	14	12	37	29
4. Explosives—								
(a) Transportation	..	..	..	..	1	..	1	..
(b) Charging	..	..	..	..	..	..	..	..
(c) Suffocation	..	..	..	..	..	..	..	..
(d) Drilling into old holes.....	..	..	1	1	..	..	1	1
(e) Striking in loose rock.....	..	..	..	..	..	..	..	..
(f) Thawing	..	..	..	..	..	..	..	..
(g) Caps, detonators, etc.....	..	..	..	..	..	..	..	..
(h) Unguarded shots.....	..	..	..	..	..	..	..	..
(i) Returned too soon.....	..	..	..	..	..	..	..	..
(j) Premature shot.....	..	..	..	..	..	..	1	..
(k) Miscellaneous	..	..	..	1	2	1	3	3
5. Haulage—								
(a) Hand and animal.....	..	..	..	..	12	9	24	14
(b) Mechanical	..	..	..	..	5	6	14	8
6. Persons falling down chute, winze, raise or stope....	2	1	1	1	10	13	12	19
7. Run of ore from chute or pocket.....	1	..	..	..	..	2	1	1
8. Drilling (by machine or hand drills).....	..	..	..	..	17	14	52	43
9. Electricity—								
(a) Direct contact with trolley wire.....	..	..	..	..	2	..	..	..
(b) Tool or bar striking trolley wire.....	..	..	..	..	..	..	1	..
(c) Contact with motor.....	..	..	..	..	2	..	1	..
(d) Other causes	..	..	..	1	..	..	3	5

UNDERGROUND—Continued

10.	Machinery other than 5 and 8.....	..	..	..	..	1	1	1
11.	Mine fires.....	..	..	..	..	..	..	..
12.	Suffocation from natural gases.....	1	..	..	..	1	2	..
13.	Inrush of water.....	..	..	..	..	..	..	..
14.	Nails and splinters.....	..	..	..	..	1	3	7
15.	Other causes—							
	(a) Falling objects other than 1 and 2.....	..	..	..	..	1	5	13
	(b) Flying objects other than 2 (c).....	..	..	..	..	..	4	15
	(c) Burns.....	..	..	..	..	36	12	54
	(d) Miscellaneous.....	..	..	..	..	..	..	..
	Total.....	12	9	..	..	4	17	363
								316

THIS

16.	Falling down shaft.....	..	..	..	1	1
17.	Objects falling down shaft.....	..	..	..	..	..
18.	Breaking of cables.....	..	..	..	..	..
19.	Overwinding	..	..	..	..	..
20.	Cage, skip or bucket—					
	(a) Runaway	..	..	..	..	..
	(b) Riding with rock or ore.....	..	..	..	1	1
	(c) Riding with timber or tools.....	1	..	..	2	1
	(d) Struck by.....	..	..	..	..	..
21.	Other causes.....	1	..	..	4	3
		—	—	—	—	10
	Total	2	..	..	8	11
						6

SURFACE SHOPS AND PLANTS

[illegible]

8. Falling objects (rocks, timber, etc.)	..	..	..	..	1	..	1	1
9. Cyanide or other poisoning	..	..	..	..	..	..	1	..
10. Scalding (steam or water)	..	..	..	..	..	..	..	..
11. Electricity	..	..	..	..	..	1	..	..
12. Hand tools, axes, bars, etc.	..	..	..	..	..	..	7	1
13. Nails, splinters, etc.	..	..	..	..	..	..	1	1
14. Flying pieces of rock from sledging or crushing	..	..	..	..	..	..	..	2
15. Other causes	..	..	..	..	..	1	6	5
Total	..	1	..	..	7	6	22	13

SMELTER

16. Haulage system—	..	1	..	..	1	..	..	..
(a) Cars and motors	..	..	..	..	..	..	..	..
(b) Mechanical conveyors	..	..	..	..	..	..	..	..
(c) Hand and animal	..	..	..	..	..	..	..	..
17. Railway cars and locomotives	..	..	..	..	..	..	..	..
18. Cranes	..	..	..	..	..	..	1	1
19. Other machinery	..	..	..	..	..	..	..	..
20. Falls of persons	..	..	..	..	..	..	..	..
21. Suffocation in ore bins	..	..	..	..	..	..	..	..
22. Flying or falling objects (rocks, timbers, etc.)	..	..	..	..	..	..	..	..
23. Gas (burns or asphyxiation)	..	..	..	..	..	..	..	1
24. Scalding (steam or water)	1	..	..	..	..	..	..	..
25. Electricity	..	..	..	..	..	..	..	..
26. Hand tools, axes, bars, etc.	..	..	..	..	2	..	..	..
27. Nails, splinters, etc.	..	..	..	..	..	..	..	..
28. Burns from matte, slag, or molten metal (pouring or spilling)	..	..	..	..	1	..	..	1
29. Hot metal explosions	..	..	..	..	..	1	..	1
30. Other causes	..	..	..	..	..	2	1	1
Total	1	1	..	..	4	3	1	5

AUXILIARY WORKS

31. Haulage systems	..	..	..	..	..	..	..	..
32. Railway cars and locomotives	..	..	..	..	..	..	..	..
33. Falls of persons	..	..	..	..	..	..	..	..
34. Falling objects (rocks, timbers, etc.)	..	..	..	..	..	..	1	1
35. Nails, splinters, etc.	..	..	..	..	..	..	..	..

CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1930 AND 1931—Continued.

	Fatal 1930 1931	Permanent Disability 1930 1931		(Time lost over 14 days)——		Slight Injuries (Time lost under 14 days) 1930 1931
		Total Disability 1930 1931	Partial Disability 1930 1931	Temporary Disability 1930 1931		
AUXILIARY WORKS—Continued						
6. Hand tools, axes, bars, etc.....	..	..	..	..	..	..
7. Electricity	..	..	..	..	..	..
8. Machinery	..	..	..	..	1	..
9. Failure of ladder, scaffold, or other support.....	..	..	..	..	..	..
0. Handling hot materials.....	..	..	..	..	..	2
1. Other causes.....	..	..	..	1	2	..
Total	..	..	..	2	5	1
IN AND ABOUT QUARRY						
1. Falls or slides of rock or overburden.....	3	..	1	5	4	9
2. Handling rock at face.....	..	..	..	5	2	5
3. Timber or hand tools.....	..	..	..	..	3	6
4. Explosives—						
(a) Transportation	..	..	..	..	..	..
(b) Charging	..	..	..	..	..	..
(c) Drilling into old holes.....	..	..	..	..	..	..
(d) Striking in loose rock.....	..	..	..	..	..	..
(e) Thawing	..	..	..	..	..	..
(f) Caps, detonators, etc.....	..	..	..	..	..	..
(g) Unguarded shots.....	..	..	..	..	..	..
(h) Returned too soon.....	..	..	..	..	..	..
(i) Premature shot.....	..	..	..	..	1	..
(j) Delayed blast.....	..	..	..	..	..	..
(k) Miscellaneous	..	..	..	2	3	2
5. Haulage—						
(a) Hand and animal.....	..	..	1	3	..	9
(b) Mechanical	..	..	..	1	1	2
6. Falling into quarry from surface, benches, or face.....	..	..	..	..	..	1
7. Falling from hoist, derricks, ladders, etc.....	..	..	..	2	..	..
8. Drilling and channelling (by machine or hand).....	..	..	..	..	..	3

9. Electricity (shock or burns).....	..	..	..	1	..	4	..	3	..
10. Machinery—	..	..	..	1	..	..	..	..	..
(a) Cables and attachments.....	..	..	..	1	..	..	..	1	..
(b) Gys, masts, booms and attachments.....	..	..	..	..	..	1	..	1	..
(c) Pumps and hoisting engines.....	..	..	..	..	..	..	1	1	..
11. Flying objects.....	..	..	..	..	..	1	..	6	3
12. Nails, splinters, etc.....	..	..	..	..	..	..	..	1	..
13. Boiler and air tank explosions.....	..	..	..	..	..	..	..	..	1
14. Falling objects.....	..	..	..	..	..	1	..	10	5
15. Burns.....	..	..	..	..	..	..	..	1	1
16. Other causes.....	..	..	..	..	..	4	3	13	10
Total.....	3	..	..	4	1	29	14	72	37
OUTSIDE WORKS									
17. Haulage—	..	..	..	..	..	1	..	5	2
(a) Hand and animal.....	..	..	..	..	..	3	..	1	1
(b) Mechanical.....	..	..	..	..	..	1	..	..	..
18. Railway cars and locomotives.....	..	..	..	..	..	..	..	..	..
19. Crushers.....	..	..	..	..	..	..	..	..	..
20. Cranes, derricks, etc.....	..	..	..	..	..	..	..	..	..
21. Other machinery.....	..	..	..	..	..	1	..	9	1
22. Falls of persons.....	..	..	..	..	..	2	2	7	..
23. Hand tools.....	..	..	..	..	..	1	..	8	1
24. Electricity.....	..	..	..	..	..	..	..	..	..
25. Nails, splinters, etc.....	..	..	..	..	..	..	..	3	..
26. Flying pieces of rock from sledging or crushing.....	..	..	..	..	..	..	..	..	3
27. Flying or falling objects (rocks, timbers, etc.).....	..	..	..	..	..	..	2	4	..
28. Handling rock at face.....	..	..	..	..	..	..	..	2	..
29. Burns.....	..	..	..	..	..	..	..	..	..
30. Other causes.....	..	..	..	..	..	1	1	7	1
Total.....	..	..	..	..	..	10	5	46	9
ROCK EXCAVATION									
1. Falls of persons.....	..	1	..	..	..	..	..	..	..
2. Machinery.....	..	1	..	..	..	..	..	..	..
3. Other causes.....	..	..	..	..	..	..	..	..	..
Total.....	..	2	..	..	..	..	..	..	..

SURFACE ACCIDENTS

SURFACE ACCIDENTS													
		Superintendent- Foremen 1930 1931		Engineers, Firemen and Hoistmen 1930 1931		Blacksmiths and Mechanics 1930 1931		Carpenters and Topmen 1930 1931		Elec- tricians 1930 1931		Others 1930 1931	
18.	Breaking of cables.....	..	..	..	..	..	..	..	..	..	..	..	..
19.	Overwinding	..	..	..	..	..	..	..	..	..	..	..	..
20.	Cage, skip or bucket.....	..	..	..	..	..	..	..	..	..	..	1	..
21.	Other causes.....	..	..	..	..	..	1	..	..	..	..	..	..
Totals.....		—	—	—	—	..	1	..	..	..	..	1	..
22.	Haulage	..	..	..	..	..	1	..	..	..	..	..	..
23.	Railway cars and locomotives.....	..	..	..	..	..	..	..	..	..	..	..	..
24.	Run or fall of ore in or from ore bins.....	..	..	..	..	..	..	..	..	..	..	..	..
25.	Falls of persons.....	..	..	..	..	..	..	..	..	..	..	..	..
26.	Nails and splinters.....	..	..	..	..	..	..	..	..	..	..	..	..
27.	Hand tools, axes, bars, etc.....	..	..	..	..	..	..	..	..	..	..	..	..
28.	Electricity	..	..	..	..	..	..	..	..	..	1	..	..
29.	Machinery	..	..	..	..	..	..	..	..	..	..	..	..
30.	Other causes.....	—	—	..	..	..	1	..	..	..	..	..	..
Totals.....		—	—	—	—	..	2	..	..	..	1	..	..
MILLS													
		Superintendent- Foremen 1930 1931		Grinding Machinery Men and Millmen 1930 1931		Concen- trator Men 1930 1931		Laborers 1930 1931		Carpenters and Mechanics 1930 1931		Aerial Tram Men and Conveyor Men 1930 1931	
1.	Haulage system.....	..	..	..	..	..	..	..	..	..	..	..	..
2.	Railway cars and locomotives.....	..	..	..	..	..	..	..	..	..	..	..	..
3.	Crushers, rolls or stamps.....	..	..	..	..	..	..	..	..	..	..	..	..
4.	Tables, jigs, etc., ...	..	..	..	..	..	..	..	..	..	..	..	..
5.	Other machinery	..	..	..	..	..	..	..	..	..	..	..	..
6.	Falls of persons	..	..	..	..	..	..	..	..	..	..	..	..
7.	Suffocation in ore bins.....	..	..	..	..	..	..	1	..	..	..	..	..

QUARRIES, CLAY PITS, OIL SHALE MINES AND ROCK EXCAVATIONS

Superintendents and

		Teamsters	Drillmen	Laborers
		1930 1931	1930 1931	1930 1931
10. Electricity	..	..	..	..
11. Hand tools, axes, bars, etc.....	..	..	..	..
12. Nails, splinters, etc.....	..	..	..	..
13. Burns from matte, slag or molten metal (pouring or spilling).....	..	..	..	..
14. Hot metal explosions.....	..	..	..	..
15. Other causes	..	..	..	..
Totals.....	—	—	—	1

		Teamsters	Drillmen	Laborers
		1930 1931	1930 1931	1930 1931
1. Haulage	..	..	..	..
2. Machinery	..	..	..	..
3. Other causes	..	..	3	..
Totals.....	—	—	3	—

PLACERS AND DREDGES

		Miners	Dredgemen	Laborers
		1930 1931	1930 1931	1930 1931
1. Machinery	..	..	..	..
2. Electricity	..	..	..	..
3. Other causes	..	..	1	..
Totals.....	—	—	1	—

ROCK EXCAVATIONS

		Superintendents and Foremen	Laborers
		1930 1931	1930 1931
1. Falls of persons	..	..	1
2. Machinery	..	..	1
3. Other causes	..	..	..
Totals.....	—	—	2

LIST OF OPERATING MINES IN VARIOUS COUNTIES OF COLORADO

OPERATING MINES IN BOULDER COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Alaska Tunnel.....	Ward.....	Alaska Gold Mines Corporation.....	311 E. and C. Bldg., Denver.....	Gold, Silver (c)
Aleyon (a).....	Ward.....	Carey, Noack and Farrar.....	1915 6th St., Boulder.....	Gold
Arapahoe Group.....	Ward.....	Dr. H. J. Thulin.....	104 Broadway, Denver.....	Gold, Silver (c)
Atlantic (a).....	Boulder.....	W. Z. Kinney and Assoc.....	Rm. 504, Bank Bldg., Denver.....	Gold, Silver (c)
Bonanza.....	Eldora.....	W. R. Hamilton.....	Eldora.....	Gold, Silver
California.....	Salina.....	Herivel and Fry.....	2027 Pine St., Boulder.....	Gold, Silver (c)
Cold Springs (m).....	Nederland.....	Wolf Tongue Mining Company.....	310 1st National Bank Bldg., Boulder.....	Tungsten
Copper King.....	Gold Hill.....	Cobalt Gold Mining Company.....	926 Pearl St., Boulder.....	Gold, Silver, Cobalt, Copper (c)
Corning.....	Ward.....	Larson Mining and Milling Trust.....	Ward.....	Gold, Silver, Lead, Copper
Cornucopia.....	Boulder.....	Cornucopia Mining Company, Inc.....	Wallstreet via Boulder.....	Gold, Silver (c)
Cracker Jack (a).....	Jamestown.....	J. E. Lee and F. W. Gallagher.....	Route 2, Box 290, Boulder.....	Gold, Silver (c)
Dolly Varden.....	Sunset.....	Sunset Gold Mining Company.....	Box 110, Boulder.....	Gold, Silver, Copper
East Columbine.....	Ward.....	N. R. Herivel and J. C. Fry.....	2027 Pine St., Boulder.....	Gold, Silver
Emancipation.....	Salina.....	Emancipation Gold M. and M. Co.....	731 Pine St., Boulder.....	Gold, Silver
Emely.....	Jamestown.....	Ralph Peacock.....	1327 Broadway, Boulder.....	Gold, Silver
Fairview (m).....	Nederland.....	Dixie Mining Company.....	405 1st National Bank Bldg., Denver.....	Gold, Silver, Lead (c)
Ferberite-Tungsten.....	Boulder.....	Ferberite-Tungsten Mines, Inc.....	Suite 305, Greeley Bldg., Greeley, Colorado.....	Tungsten (c)
Gladiator.....	Jamestown.....	Senator Hill Mining Company.....	808 Strauss Bldg., Chicago, Ill.....	Gold, Silver
Good Friday (a) (m).....	Sugar Loaf.....	Earl Craig.....	839 Mapleton Ave., Boulder.....	Tungsten
Great West Group.....	Ward.....	The Volcanic Gold Corporation.....	1744 Glenarm St., Denver.....	Gold, Silver (c)
Homestead.....	Sugar Loaf.....	M. A. Sacks.....	905 Euclid, Boulder.....	Gold, Silver
Ingram.....	Salina.....	Ingram Mine Company.....	3663 Forest Park Blvd., St. Louis, Mo.....	Gold, Silver (c)
Iron and Silver (a).....	Ward.....	M. E. Vale.....	Boulder, Ward Star Route.....	Gold, Silver (c)
Kansas City (a).....	Magnolia.....	J. Moore.....	Box 427, Boulder.....	Gold, Silver
Lexington Group (a).....	Caribou.....	Secured Mining Corporation.....	Caribou.....	Gold, Silver (c)
Logan.....	Boulder.....	Electra Engineering and Development Company.....	Crisman, via Boulder.....	Gold, Silver
Lucky Star (m).....	Gold Hill.....	Ed C. Bakke and Associates.....	808 Pine St., Boulder.....	Gold, Silver
Mammoth.....	Nederland.....	Henderson, McKinzie and Walsh.....	Nederland.....	Tungsten
Mary V. (a).....	Boulder.....	Fred Holwegner.....	Boulder.....	Gold
May Claim No. 1 (a).....	Boulder.....	Walter N. and Della A. Ramsey.....	Box 375, Boulder.....	Gold, Silver (c)
Minneapolis and Mineral Point (a).....	Boulder.....	Little Jerry Mining Company.....	1913 Mapleton Ave., Boulder.....	Gold, Silver (c)

Mountain Lion.....	E. W. Hetzer and M. A. Long.....	Magnolia Star Route, Boulder.....	Gold	Silver, Lead, Copper, Zinc (c)
Myrtle	D. S. Clark and Company.....	Gold Hill.....	Gold	
Nancy Group (m).....	Metals Production Company.....	Citizens National Bank Bldg., Boulder.....	Gold	
Orphan Boy (m).....	Clarence A. Weber.....	2329 13th St., Boulder.....	Silver	
Pandora	Pandora Metals, Inc.....	220 E. & C. Bldg., Denver.....	Gold, Silver, Copper (c)	
Pittsburgh	R. B. Kinton.....	General Delivery, Boulder.....	Gold	
Plough Boy (a).....	Plough Boy Mining Company.....	1625 California St., Denver.....	Silver (c)	
Poorman (a).....	E. F. Green and J. G. Clark.....	940 10th St., Boulder.....	Gold, Silver	
Potosi (m).....	Potosi-Caribou Mining Company.....	Caribou.....	Gold, Silver	
Puzzler (a).....	G. L. Stanley and R. T. Wilson.....	Ward Star Route, Boulder.....	Gold, Silver (c)	
Roseberry (a) (m).....	Roseberry Mining and Milling Co.....	3411 Lafayette St., Denver.....	Gold, Silver (c)	
Salina	P. J. Mix and D. E. Hoagland.....	1821 16th St., Boulder.....	Gold, Silver (c)	
Senator Hill.....	Magnolia	808 Strauss Bldg., Chicago, Ill.....	Gold, Silver (c)	
Shirley	Eldora	4489 S. Lincoln St., Englewood.....	Gold, Silver	
Slide (a).....	Shirley Mines Company.....	930 14th St., Boulder.....	Gold, Silver	
Spencer Mountain Group (a) (m).....	Alex McLellan.....	911 Midland Savings Bldg., Denver.....	Gold, Silver (c)	
St. Louis.....	Continental Gold Company.....	2900 Champa St., Denver.....	Gold, Silver, Lead	
Tungsten (m).....	Richard Harvey.....	Nederland.....	Tungsten	
Twin Brothers.....	Geo. W. Cowdery.....	2215 Glenarm St., Denver.....	Gold, Silver	
United Mines Group.....	D. Weber.....	Citizens National Bank Bldg., Boulder.....	Gold, Silver	
Valley Forge.....	United Mines Company.....	28th and Penn. Ave., Boulder.....	Gold, Silver	
Vasco Group 1-10.....	Retallack, Bartlett and Poucher.....	301 Continental Oil Bldg., Denver.....	Gold, Silver	
Waco (a) (m).....	Tungsten Production Company, Inc.....	Boulder, via Salina Star Route.....	Gold, Silver	
Wheelman	A. E. Tower.....	940 10th St., Boulder.....	Gold, Silver	
Wood Mountain (m).....	William Shaw.....	1107 10th St., Boulder.....	Gold, Silver	
Yellow Jacket.....	Mountain Plains Companies, Inc.....		Gold, Silver	
	C. H. Craig.....		Gold, Silver	

OPERATING MINES IN CHAFFEE COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Austin Group.....	Turret.....	Colony Metals Corporation.....	211 E St., Salida.....	(c)
Granite Tunnel.....	Granite.....	H. and H. Mining Company.....	Granite.....	Gold
Matilda	Silver Elmo.....	Silver Queen Mining Company.....	634 Cooper Bldg., Denver.....	(c)
Nellie Bly Shaft (a).....	Buena Vista.....	F. A. Fuller.....	1145 Lafayette St., Denver.....	(c)
(a) Operated for part of year only.	(c) No production reported in 1931.	(m) Mill operated in connection with mine.		

OPERATING MINES IN CLEAR CREEK COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
A. P. Tunnel.....	Silver Plume.....	O. Barlow	Willmarth.....Georgetown	Gold, Silver, Lead
Argo Tunnel.....	Central City.....	Chain O'Mines, Incorporated.....	5 S. Wabash Ave Chicago, Ill.	Gold, Silver, Copper, Zinc
Benton (m).....	Empire.....	Gold Dirt Mining Company.....	Security Bldg., Denver.....	Gold, Silver, Lead, Copper
Black Bear.....	Idaho Springs.....	The Black Bear Mines, Inc.....	Idaho Springs.....	Gold, Silver (c)
Bride (a).....	Idaho Springs.....	Columbine Leasing Company.....	Box 551, Idaho Springs.....	Gold, Silver, Lead, Zinc (c)
Caddo (m).....	Idaho Springs.....	Gold Investors Corporation.....	Idaho Springs.....	Gold, Silver
Centennial (m).....	Georgetown.....	Western States Mining Co. and Centennial Reduction Co.....	Georgetown.....	Gold, Silver
Central Tunnel, Edgar, etc.....	Idaho Springs.....	North American Mining Company.....	465 Interstate Trust Bldg., Denver.....	Gold, Silver, Lead, Copper
Clear Creek and Gilpin Tunnel Group.....	Dumont.....	Clear Creek Consolidated Corporation of American Mines.....	Dumont.....	Gold, Silver, Lead
Dexter.....	Idaho Springs.....	Sunday Leasing Company.....	1525 Market St., Denver.....	Gold, Silver, Lead
Doctor (m).....	Empire.....	E. F. Rollo.....	Box 14, Empire.....	Gold, Silver (c)
Dove.....	Idaho Springs.....	Cascade-Dove Mining Company.....	1610 Gaylord St., Denver.....	Gold, Silver (c)
Freeland Extension.....	Idaho Springs.....	Gold Trail Mining and Milling Co.....	Idaho Springs.....	Gold, Silver (c)
Gold Dirt (m).....	Empire.....	The Gold Dirt Mining Company.....	812 Security Bldg., Denver.....	Gold
Grand and Clear Creek (a).....	Empire.....	The Grand Clear Creek Tunnel Co.....	Empire.....	Gold, Silver, Lead, Copper (c)
High Five.....	Georgetown.....	The Argentine Gold Mining Co.....	502 Denver Theatre Bldg., Denver.....	Gold, Silver, Copper (c)
Ingram.....	Idaho Springs.....	Bauer and Pulook.....	Idaho Springs.....	Gold, Silver, Lead
Kanawha (a).....	Lawson.....	I. E. Clapper and W. S. Babcock.....	Lawson.....	Gold, Silver (c)
Liberty.....	Empire.....	Precious Metals Mining Company.....	127 S. Broadway, Denver.....	Gold, Silver (c)
Lincoln (a).....	Idaho Springs.....	Tarheel Gold Mining Company.....	531 U. S. National Bank Bldg., Denver.....	Gold, Silver
Lombard (a) (m).....	Idaho Springs.....	Swift Sure Mining Company.....	408 Patterson Bldg., Denver.....	Gold, Silver, Lead, Copper (c)
Mattie (m).....	Idaho Springs.....	Mattie Consolidated Mines, Inc.....	340 Continental Oil Bldg., Denver.....	Gold
Mendota (m).....	Silver Plume.....	Consolidated Smelter and Metals Co.....	4775 East 6th Ave, Denver.....	Gold, Silver
Mint.....	Empire.....	Gold Dyke Mines, Inc.....	Rm. 17, 208 16th St., Denver.....	Gold, Silver (c)
M. Sidney.....	Georgetown.....	M. Sidney.....	Georgetown.....	Gold, Silver, Lead
New Era (m).....	Idaho Springs.....	Tri-States Development Corporation.....	504 Jacobson Bldg., Denver.....	Gold, Silver, Lead
Parker Placers (m).....	Idaho Springs.....	John H. Jay.....	4150 Josephine St., Denver.....	Gold, Silver
Queen Elizabeth.....	Idaho Springs.....	Frank J. Hayes Mining Company.....	1264 Corona St., Denver.....	Gold, Silver
Reynolds (m).....	Idaho Springs.....	Geo. A. and E. A. Reynolds.....	Idaho Springs.....	Gold
Silver Mountain.....	Empire.....	Nelson Leasing and Development Co.....	Empire.....	Gold

Silver Queen.....	Grant.....	J. F. Kimberly and J. L. Henritzz.....	Shawnee.....	Gold, Silver, Lead, Zinc, Copper
Star Tunnel.....	Idaho Springs.....	Consolidated Smelter and Metals Co.....	4775 E 6th Ave., Denver.....	
Tolland Tunnel Group.....	Idaho Springs.....	Aetna Leasing Company, Inc.....	Idaho Springs.....	Gold, Silver, Lead (c)
Treasure Vault.....	Idaho Springs.....	Treasure Vault Syndicate.....	Idaho Springs.....	Gold, Silver (c)
West Gold (Group (m)).....	Idaho Springs.....	West Gold Mining and Milling Co.....	Idaho Springs.....	Gold, Silver (c)
Wilson (a).....	Empire.....	Mrs. A. C. Wilson Zehr.....	Empire.....	Gold, Silver, Lead, Copper (c)

OPERATING MINES IN CUSTER COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Cloverdale.....	Hillside.....	The Cloverdale Mines Company.....	Hillside.....	Gold
Hector.....	Westcliffe.....	Blake H. MacElvain.....	5th Ave., Pueblo.....	Gold
Terrible.....	Hse.....	Robert D. Webb.....	Canon City.....	Lead (c)

OPERATING MINES IN DENVER COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Jorn and Harrah (m) (a).....	Valverde.....	Charley Harrah and Karl Jorn.....	490 S. Alcott St., Denver.....	Gold, Silver, Tan- talam, Uranium (c)

OPERATING MINES IN DOLORES COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Burns Group.....	Rico.....	Mines Leasing Syndicate.....	Rico.....	Gold, Silver, Lead, Copper, Zinc (c)
Pro Patria.....	Rico.....	Rico Enterprise Mining Company.....	Rico.....	Gold, Silver, Lead, Zinc (c)
Union Carbonate.....	Rico.....	Union Carbonate Mines, Inc.....	307 Boston Bldg., Denver.....	Gold, Silver, Lead, Zinc
Wellington.....	Rico.....	St. Louis Smelting and Refining Co.....	722 Chestnut St., St. Louis, Mo.....	Silver, Lead, Cop- per, Zinc (c)

(a) Operated for part of year only. (c) No production reported in 1931. (m) Mill operated in connection with mine.

OPERATING MINES IN EAGLE COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Eagle (m)	Gilman	Empire Zinc Company	Gilman	Gold, Silver, Lead, Copper, Zinc
Liberty	Gilman	Liberty Mines Syndicate, Inc.	Box 931, Leadville	(c)

OPERATING MINES IN GARFIELD COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
U. S. Vanadium (m)	Rifle	U. S. Vanadium Corporation	30 E. 42nd St., New York City, N. Y.	Vanadium
Garfield Vanadium Corp. Group	Rifle	Grand View Mines Corporation	Rifle	Vanadium (c)

OPERATING MINES IN GILPIN COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Ace in the Hole	Russell Gulch	Ace in the Hole Gold Mining Co.	Central City	Gold, Silver
Beacon (a)	Rollinsville	Beacon Mining and Milling Co.	Rollinsville	Gold, Silver, Copper (c)
Buckhorn (m)	Blackhawk	Bird, Watson and Bird	2006 Pearl St., Boulder	Gold
Bullion	Central City	New Life Mining and Milling Co.	49 Westminister St., Providence, R. I.	Gold
Chain O'Mines (m)	Central City	Chain O'Mines, Inc.	5 S. Wabash Ave., Chicago, Ill.	Gold, Silver, Copper, Zinc
Eagle Group (m)	Rollinsville	Oneida Mining Company	Rollinsville	Gold, Silver, Lead, Zinc (c)
Egyptian	Central City	Quartz Hill Central Mining Co.	732 U. S. National Bank Bldg., Denver	Gold, Silver (c)
Florence Group	Rollinsville	Gamble Gulch Mining and Milling Co.	Rollinsville	Gold, Silver (c)
Free Gold Tunnel Group	Rollinsville	Travis Gulch Mining Company	305 Kittedge Bldg., Denver	Gold, Silver
German	Central City	Chain O'Mines, Inc.	5 S. Wabash Ave., Chicago, Ill.	Gold, Silver
Gold Basin Group (a)	Rollinsville	Gold Basin Mining Company	Windsor Hotel, Denver	Gold, Silver (c)
Gold Cup (a)	Central City	Samuel Thomas and Company	Box 137, Central City	Gold, Silver, Lead
Grace (a)	Rollinsville	W. L. Howard	Rollinsville	Gold

Great Mammoth (m).....	Central City.....	Gold Patch Mining Company.....	Idaho Springs.....	Gold, Silver, Lead, Copper, Zinc
Harrison (a).....	Apex.....	R. C. Mining Company, Inc.....	2124 Cuming St., Omaha, Neb.....	Gold, Silver, Lead (c)
Hidden Treasure Group.....	Rollinsville.....	J. W. Kelley.....	824 Mead St., Denver.....	Copper (c)
Independent (a) (m).....	Blackhawk.....	W. E. Goner and Associates.....	Central City.....	Gold
Leavenworth.....	Russell Gulch.....	W. M. Ware.....	Central City.....	Gold, Silver
Leldinger.....	Central City.....	C. C. McNamee.....	101 Ulster Ave., Atlantic Beach, Long Island, N. Y.....	Gold, Silver
Louisiana.....	Apex.....	John A. Crook and Edward R. Quinn.....	Apex.....	Gold, Silver (c)
North Star (a) (m).....	Central City.....	North Star Gold Mines Company.....	624 Penn. St., Denver.....	Gold, Silver, Copper (c)
Ninety-One.....	Russell Gulch.....	The 91 Mines Company.....	417 Chamber of Commerce Bldg., Denver.....	Gold, Silver (c)
Oro Tunnel Group.....	Blackhawk.....	Chain O' Mines.....	5 S. Wabash Ave., Chicago, Ill.....	Gold, Silver
Perigo (m).....	Rollinsville.....	American Mines and Smelting Co.....	Sullivan Bldg., Boulder.....	Gold, Silver
Pittsburgh Group (m).....	Central City.....	Ute Gold Mining Company.....	530 U. S. National Bank Bldg., Denver.....	Gold, Silver
Powers (a).....	Central City.....	Gold Bar Mining Company.....	Central City.....	Gold, Silver, Copper (c)
Russell.....	Russell Gulch.....	Lowell Griffith and Associates.....	Russell Gulch.....	Gold, Silver (c)
Saratoga Group.....	Russell Gulch.....	Saratoga Gold Mines, Inc.....	730 Majestic Bldg., Denver.....	Gold, Silver
Silver Spruce (a).....	Rollinsville.....	William Roderick.....	Sugar Loaf.....	Gold, Silver (c)
Smuggler (m).....	Rollinsville.....	New Life Mining and Milling Corp.....	49 Westminster St., Providence, R. I.....	Gold, Silver (c)
Storm and Keystone (a).....	Central City.....	Frank Weaver.....	Central City.....	Gold, Silver
War Eagle Group (m).....	Rollinsville.....	Western Consolidated Resources, Inc.....	1323 Stout St., Denver.....	Gold, Silver

OPERATING MINES IN GRAND COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bonnie Belle.....	Parshall.....	Chas. A. Fletcher.....	Parshall.....	Gold, Silver, Lead, Zinc, Copper (c)
Elk Mountain.....	Kremmling.....	Elk Mountain Copper Company.....	Hot Sulphur Springs.....	Gold, Silver, Lead, Zinc, Copper (c)
Minnesota Group (a).....	Fraser.....	Geo. D. Parks and Associates.....	Salina, via Boulder.....	Gold, Silver, Lead, Zinc, Copper (c)
Mt. Vasquez.....	Fraser.....	Mt. Vasquez Mines Company.....	404 University Bldg., Denver.....	Gold, Silver, Lead, Zinc, Copper (c)
Ready Cash (a).....	Empire.....	Jones Pass Leasing Company.....	264 S. Washington St., Denver.....	Gold, Silver (c)

(a) Operated for part of year only.

(c) No production reported in 1931.

(m) Mill operated in connection with mine.

OPERATING MINES IN GUNNISON COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Consolidated Akron, Morning Star, Nest Egg Groups (a) (m)	White Pine	Tomiechi Consolidated Mines Co.—R. S. Brown	Canon City	Silver, Lead, Zinc (c)
Enterprise	Aspen	Taylor Park Milling and Power Co.	904 Equitable Bldg., Denver	Gold, Silver, Lead
Fairview	Pitkin	Fairview-Cleopatra Mines, Inc.	2626 Ash St., Denver	Silver, Lead, Copper (c)
Gold Link	Ohio	American Metals Corporation	2050 S. St. Paul St., Denver	Gold, Silver, Lead (c)
Maple Leaf Group (a)	Parlin	John H. Fox	Parlin	Gold (c)
Old Lot (a) (m)	Iola	Economy Mining and Milling Co.	Iola	Gold, Silver, Lead, Zinc
Roosevelt Mines (a) (m)	Pitkin	Roosevelt Mines and Electric Co.	Pitkin	Gold, Silver, Copper (c)
True Blue Group	Almont	True Blue Mining Company	618 Downing St., Denver	Gold, Silver, Lead, Zinc (c)
Valley View Group	Powderhorn	Gunnison Gold Mines, Inc.	115 Broadway, Denver	Gold, Silver, Copper, Zinc (c)

OPERATING MINES IN HINSDALE COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Fanny Fern Group	Lake City	W. V. Nolan	Lake City	Gold, Silver, Lead, Zinc, Copper
Gladiator Group	Lake City	B. M. Ramsey and Associates	Lake City	Gold, Silver, Copper (c)
Golden Wonder	Lake City	J. W. Vickers and Sons	Lake City	Gold, Copper

OPERATING MINES IN JACKSON COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Cragg (a)	Walden	Marshall Moore	626 S. Meldrum St., Fort Collins	Silver, Lead (c)
Crescent	Rand	Crescent City Mining and Development Company	Walden	Gold, Silver
Fourth of July (a)	Kings Canyon	Medicine Bow Developing Corp.	319 S. 2nd St., Laramie, Wyo.	Molybdenum, Copper (c)
Gold Cup (a)	Rand	Fred Jordon and Joe Jenkins	Rand	Gold, Silver
Leader Nos. 1, 2 (a)	Rand	Axel Sannes	Rand	Gold, Silver, Lead, Zinc
Wolverine (a) (m)	Cowdrey	Burr Lobdell	Cowdrey	Gold, Silver, Lead, Copper, Zinc

OPERATING MINES IN LAKE COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Adams Shaft.....	Leadville.....	Adams Lease.....	Leadville.....	Silver, Lead, Copper, Zinc, Iron
Ball Mountain.....	Leadville.....	Ball Mountain Leasing Company.....	Box 917, Leadville.....	Gold, Silver (c)
Belle of Granite (m).....	Granite.....	Burns Mines, Inc.....	Salida.....	Gold
Cleveland Tunnel.....	Leadville.....	William J. Forbes and Associates.....	Leadville.....	Gold, Silver, Lead
Climax Molybdenum (m).....	Climax.....	Climax Molybdenum Company.....	295 Madison Ave., New York, N. Y.....	Molybdenum (c)
Eclipse Tunnel.....	Leadville.....	Eclipse Lease.....	Leadville.....	Gold, Silver, Lead, Copper, Zinc
Fanny Rawlings.....	Leadville.....	Geo. Schrieber and Associates.....	Leadville.....	Gold, Silver, Lead, Copper, Zinc
Ibex Mines.....	Leadville.....	The Ibex Mining Company.....	118 W. 3rd St., Leadville.....	Gold, Silver, Lead, Copper, Zinc
Katie Shaft.....	Leadville.....	Ben Anderson and Company.....	Leadville.....	Gold, Silver, Lead (c)
St. Ann Shaft (a).....	Leadville.....	St. Ann Lease.....	228 E. 9th St., Leadville.....	Gold, Silver, Lead (c)
St. Louis Tunnel.....	Leadville.....	Clyde L. Balkwill and Associates.....	400 W. 9th St., Leadville.....	Gold
Ventr Shaft.....	Leadville.....	Ventr Lease.....	329 W. 8th St., Leadville.....	Gold, Silver, Lead, Zinc, Iron
Winnle Shaft.....	Leadville.....	Ellis Webster and Company.....	Leadville.....	Gold (c)
Yosemite Group.....	Granite.....	Marquette Mining Company.....	504 Bank Block, Denver.....	Gold (c)

OPERATING MINES IN LA PLATA COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Gold King (m).....	La Plata.....	La Plata Mines Company.....	La Plata.....	Gold, Silver (c)
Lady Eleanora Group.....	La Plata.....	Lady Eleanora Consolidated Gold Mines Company.....	722 Kittredge Bldg., Denver.....	Gold, Silver, Lead, Copper (c)
May Day.....	Hesperus.....	Houser Leasing Company.....	Hesperus.....	Gold, Silver, Zinc
Montezuma Gold Reef Group (m).....	Hesperus.....	Monarch Gold Mining Company.....	Hesperus.....	Gold
Saint Paul.....	Durango.....	P. D. Solomon and Son.....	Durango.....	Gold, Silver
Texas Chief Group.....	Durango.....	Texward Mining and Milling Co.....	629 Exchange Bldg., Denver.....	Gold, Silver

(a) Operated for part of year only.

(c) No production reported in 1931.

(m) Mill operated in connection with mine.

OPERATING MINES IN LARIMER COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Carter (a)	Masonville	Gene Harrington and Company	Masonville	Gold, Silver, Lead,
Cash Group (a)	Eggers	Cash Gold Mining Company	2305 Gaylord St., Denver	Gold, Silver
Colorado (a)	Manhattan	Colonial Investment Company	Logcabin	Zinc, Copper (c)
Free Gold (a)	Manhattan	Poudre Gold Mining Company	Logcabin	Gold, Silver (c)
Gold Bug (a)	Manhattan	George Gabriel	Bellevue	Gold, Silver (c)
Goldora (a)	Fort Collins	Goldora Mines	121 N. Sherwood St., Fort Collins	Gold, Silver (c)
Little Helen Nos. 1, 2	Manhattan	G. W. Wirick	Logcabin	Gold (c)
Lone Pine (a)	Masonville	Mrs. Anna Krutsinger	Masonville	Gold, Silver
Prodigal	Manhattan	J. W. Rigdon	228 N. Loomis St., Fort Collins	Gold (c)
Rockfield (a)	Manhattan	S. A. and W. T. Pendergast	Logcabin	Gold, Silver
Welcome (a)	Manhattan	S. A. and W. T. Pendergast	Logcabin	Gold, Silver, Copper (c)

OPERATING MINES IN MINERAL COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Happy Thought	Creede	Spam Mining, Milling and Leasing Company	Del Norte	Gold, Silver

OPERATING MINES IN MOFFAT COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bromide (a) (m)	Greystone	Robert Pherson	Greystone	Copper

OPERATING MINES IN OURAY COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
American Nettle	Ouray	American Lease, Inc.	Ouray	Gold, Silver
Atlas Mill (a)	Ouray	Magee and Boring	Ouray	Gold, Silver
Banner American (m)	Ouray	Banner American Mining Company	Ouray	Gold, Silver, Lead, Zinc, Copper

Barstow	Ouray	Barstow Mines, Inc.	1422 17th St., Denver	Gold, Silver, Lead, Zinc (c)
Callope	Ouray	B. P. Bailey and D. N. Harper	Ouray	Gold, Silver, Lead, Zinc (c)
Camp Bird (m)	Ouray	King Lease, Inc.	Ouray	Gold, Silver, Lead, Copper
Mickey Breen (a)	Ouray	George C. Davis	2541 S. Washtenaw Ave., Chicago, Ill.	Gold, Silver, Lead, Copper
Sunnyside Nos. 1, 2	Ouray	James Davis and Associates	Ouray	Gold
Trust Ruby Group	Ouray	Joe Fico and Associates	Ouray	Gold, Silver

OPERATING MINES IN PARK COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
American	Alma	Amer Mining Company	540 Brown Palace Hotel, Denver	Gold, Silver
Caldora	Alma	D. C. Harrington	Alma	Gold, Silver (c)
Champaign	Alma	Dorothy R. Redman et al.	1056 Gaylord St., Denver	Gold, Silver (c)
Dempsey Group	Alma	London Option	1735 Stout St., Denver	Gold, Silver (c)
Discovery No. 1	Alma	A. I. Sandusky	Alma	Gold, Silver, Lead (c)
Kausas (a)	Webster	Roy R. Belknap	Bailey	Gold, Silver, Lead, Bismuth (c)
London	Alma	London Gold Mines Company	First National Bank, Colorado Springs	Gold, Silver, Lead, Zinc
Louisville (a)	Alma	Louisville Mining Company	Alma	Gold, Silver
Missouri	Webster	Charles M. Snyder	Shawnee	Gold, Silver, Lead, Copper, Bismuth
North London (a) (m)	Alma	Fairplay Gold Mines, Inc.	Fairplay	Gold, Silver (c)
Ophir	Alma	Mosquito Gold Mines, Inc.	301 Humboldt St., Denver	Gold, Silver (c)
Orphan Boy	Alma	A. E. Moynahan	241 Coronado Bldg., Denver	Gold, Silver
Pactolas	Alma	W. Z. McGlochin	Alma	Gold, Silver
Phillips (a)	Alma	W. R. Owen and J. A. Ross	Alma	Gold, Silver
Preparedness (a)	Alma	I. B. Baldock	Alma	Gold, Silver (c)

(a) Operated for part of year only.

(c) No production reported in 1931.

(m) Mill operated in connection with mine.

OPERATING MINES IN PARK COUNTY, 1931—Continued

Name of Mine	Location	Operator	P. O. Address	Character of Product
Russia or Lincoln Consolidated	Alma	The Lincoln Consolidation Mining Company	Alma	Gold, Silver (c)
Sarsfield (a)	Alma	Sarsfield Consolidated Mining and Milling Company	303 Denham Bldg., Denver	Gold, Silver (c)
Spar Fissure Vein (a)	Guffey	Thomas A. Thompson and August Fromm	Guffey	Gold (c)
Star of Texas	Alma	Alma Gold Corporation	706 1st National Bank Bldg., Denver	Gold, Silver (c)
Sweet Home	Alma	Edwin C. Spray	2110 Market St., Denver	Gold, Silver, Lead, Copper, Zinc (c)
Weber (m)	Alma	Alma Syndicate, Inc.	308 1st National Bank Bldg., Denver	Gold, Silver, Lead, Zinc

OPERATING MINES IN PITKIN COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Hope Tunnel	Aspen	Famous Lease	Aspen	Silver, Lead (c)
Independence Group	Aspen	D. P. Rohlfing and Associates	Aspen	Gold, Silver
Midnight (m)	Aspen	Midnight Mining Company	Box 188, Aspen	Silver, Lead, Zinc

OPERATING MINES IN RIO GRANDE COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Miser and Guadalupe Tunnels (m)	Jasper	Marian Mining Company	727 1st National Bank Bldg., Denver	Gold, Silver, Lead, Copper (c)
Treasure Comstock Group	Summitville	Treasure Mtn. M.-M. and T. Co.	Pagosa Springs	Gold, Silver (c)

OPERATING MINES IN ROUTT COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Copper King (a)	Copper Spur	Cole Mining and Milling Company	Copper Spur	Gold, Silver, Lead, Copper (c)
Royal Flush (m)	Columbine	Hahns Peak Gold Mining and Milling Company	Room 3, Algoma Bldg., Oshkosh, Wisconsin	Gold, Silver, Lead, Copper (c)
Tom Thum (a)	Columbine	Tom Thum Leaseholders	Steamboat Springs	Gold, Silver, Lead, Copper (c)

OPERATING MINES IN SAGUACHE COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Josie K. Folsom	Saguache	Josie K. Folsom Mining and Milling Company	4280a Holly Ave., St. Louis, Mo. . . (c)	
Orient	Mineral Hot Springs	Colorado Fuel and Iron Company	Continental Oil Bldg., Denver	Iron

OPERATING MINES IN SAN JUAN COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Brooklyn (a)	Silverton	J. E. Carney and Associates	Ouray	Gold, Silver Lead, Copper (c)
Copper Bell	Silverton	United Operating Trust, Inc.	601. Iroquois Bldg., Buffalo, N. Y.	Gold, Silver Lead, Copper (c)
Ezra R. Group	Silverton	Townsend Lead Zinc Company	505 U. S. National Bank Bldg., Denver	Gold, Silver Lead, Copper (c)
Lead Carbonate Group	Silverton	El Banco Mines Company	Merrill Trust Bldg., Bangor, Maine	Gold, Silver Lead, Copper, Zinc
Little Nation	Howardsville	Royal Charter Mining Company	2200 McGee St., Kansas City, Mo.	Gold, Silver Lead, Copper, Zinc (c)
Mable Group	Silverton	United Operating Trust, Inc.	601. Iroquois Bldg., Buffalo, N. Y.	Gold, Silver Lead, Copper
North Star (m)	Silverton	North Star Sultan Mining Company	430 U. S. National Bank Bldg., Denver	Gold, Silver Lead, Copper, Zinc (c)
Pride of the West (a)	Silverton	A. W. Harrison	Silverton	Gold, Silver Lead, Copper, Zinc (c)
Shenandoah-Dives (m)	Silverton	Shenandoah-Dives Mining Company	1000 Grand Avenue, Temple, Kansas City, Mo.	Gold, Silver Lead, Copper, Zinc (c)
Silver Lake Mines	Silverton	American Smelting and Refining Co.	441 Equitable Bldg., Denver	Gold, Silver Lead, Copper
Sunnyside (m)	Silverton	Sunnyside Mining and Milling Co.	1 State St., Boston, Mass.	Gold, Silver Lead, Copper, Zinc

(a) Operated for part of year only.

(c) No production reported in 1931.

(m) Mill operated in connection with mine

OPERATING MINES IN SAN MIGUEL COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Fairview Group (a)	Telluride	C. V. Nordgren	Telluride	Gold, Silver, Lead
Frazier Group (a)	Placerville	James V. Rose	Glenwood Springs	Carnotite (c)
New Dominion	Ophir	Ophir Gold Mines and Reduction Co.	Ophir	Gold, Silver, Lead, Zinc
Shoemaker and Nunn Group (m)	Iron Springs	Purdy Lease	Ophir	Gold, Silver, Lead, Zinc
Smuggler Union	Telluride	Denver Metals and Machinery Co.	130 Larimer St., Denver	Gold, Silver

OPERATING MINES IN SUMMIT COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bennett Newton (a)	Breckenridge	Ben McGuire	Breckenridge	Gold (c)
Chief Tunnel Group (a)	Frisco	C. C. Masterson and Associates	Frisco	Gold, Silver, Lead (c)
Dunkin	Breckenridge	Dunkin Leasing Company	Breckenridge	Gold, Silver, Lead (c)
Frisco (a)	Frisco	Fred N. Cobb	Frisco	Gold (c)
Jumbo	Breckenridge	Jumbo Properties, Inc.	708 Colorado Bldg., Denver	Gold, Silver, Lead (c)
McDowell	Alma	McDowell Mines, Inc.	746 Equitable Bldg., Denver	Gold, Silver (c)
Pacific (a)	Breckenridge	Thomas Deleo and Associates	Alma	Gold, Silver (c)
Pilot	Montezuma	George Robinson	Breckenridge	Gold, Silver, Lead (c)
Purcell Group	Dillon	Thomas Kirk and Aggie Kirk	Dillon	Gold, Silver (c)
Silver King	Montezuma	Swan Wetterberg and J. C. Ritchey	Montezuma	Gold, Silver, Lead
Tiger	Tiger	Royal Tiger Mines Company	Tiger	Gold, Silver, Lead, Zinc, Copper
War Eagle	Montezuma	A. E. Mansfield and Associates	616 University Bldg., Denver	Gold, Silver, Lead
White Swan	Tiger	White Swan Mining Company	Breckenridge	Gold, Silver, Lead (c)

OPERATING MINES IN TELLER COUNTY, 1931

Name of Mine	Location	Operator	P. O. Address	Character of Product
Ajax	Victor	Granite Gold Mining Company	Mining Exchange Bldg., Colorado Springs	Gold
Ajax Dump	Victor	L. A. H. M., Inc.	Longmont	Gold
Anchoria Leland	Cripple Creek	Kolmon Gold Mining Company	Cripple Creek	Gold
Blocks 15-16-17 (a)	Cripple Creek	Stumpff and Henderson	Cripple Creek	Gold

Blocks 20-21-50 (a).....	LeClair Consolidated Mines Co.....	Box 186, Colorado Springs.....	Gold
Bob Terry (a).....	Cripple Creek.....	Caribou	Gold (c)
C. K. and N. and Henry Ad- ney (a).....	Cripple Creek.....	Beacon Hill Mines, Inc.....	Cripple Creek
Cameron Town Site.....	Cripple Creek.....	Cameron Gold Mines, Inc.....	507 Empire Bldg., Denver.....
Cresson	Cripple Creek.....	Cresson Consolidated Gold Mining and Milling Company.....	Box 86, Colorado Springs.....
Crown Point.....	Cripple Creek.....	Corder and Vannati.....	Cripple Creek
Eldredge Group (a).....	Cripple Creek.....	Cripple Creek Eagle Gold Mining Co. 2018 Goodnight Ave., Pueblo..	Gold
Elkton Dump (a).....	Cripple Creek.....	Elkton Company.....	Cripple Creek
Ellis (a).....	Cripple Creek.....	Ellis Mining Company.....	La Junta.....
Findley	Cripple Creek.....	A. D. Walker.....	Cripple Creek
Findley Dump.....	Cripple Creek.....	L. A. H. M., Incorporated.....	Longmont.....
Forest Queen.....	Cripple Creek.....	United Gold Mines Company.....	Box 86, Colorado Springs.....
Gold Bond	Cripple Creek.....	W. P. Sellers.....	1342 Columbine St., Denver.....
Gold Sovereign.....	Cripple Creek.....	Gold Sovereign Mining and Tunnel Company	222 Burns Bldg., Colo. Springs, Gold
Hub Claim.....	Cripple Creek.....	LeClair Consolidated Mines Co.....	Box 186, Colorado Springs.....
Ida May (a).....	Cripple Creek.....	L. A. Schoen and Company.....	1011 W. Pikes Peak Ave., Colo-Gold
Isabella	Cripple Creek.....	Empire Lee Mining Company.....	222 Burns Bldg., Colo. Springs, Gold
Jefferson	Cripple Creek.....	Judge James Owen and Joseph B. Page	Victor
Jerry Johnson	Cripple Creek.....	Jerry Johnson Gold Mining Co.....	Cripple Creek
Kittie Wells (a).....	Cripple Creek.....	Jay Gould Partnership.....	Attica, Indiana
Little Ida (a).....	Cripple Creek.....	J. C. Wagner and Mrs. Ida Wagner..	331 E. Bennett Ave., CrippleGold
Little May.....	Cripple Creek.....	Cripple Creek Coalition, Inc.....	508 Empire Bldg., Denver.....
Logan Tract (a).....	Cripple Creek.....	Idaho Springs Gold Producing Co., Inc.....	634 Cooper Bldg., Denver.....
Longfellow (a).....	Cripple Creek.....	Longfellow Leasing Company.....	407 E. Eaton, Cripple Creek.....
Manitou	Cripple Creek.....	W. H. Sutherland and D. J. Sullivan..	2320 W. Pikes Peak Ave., Colo- rado Springs.....
Moose and Bertha B (a).....	Cripple Creek.....	Moose Mine Operations, Inc.....	Cripple Creek
Night Hawk	Cripple Creek.....	Black Belle Mining Company	221 Central Savings Bldg., Den-Gold
Phay (a).....	Cripple Creek.....	Phay Gold Mining Company.....	123 N. Prospect St., Colorado Springs
Pinnacle	Cripple Creek.....	Mexican Gold and Silver Mining Co.	1109 Alexander Bldg., San Francisco, Calif.....
Plutocrat (a).....	Cripple Creek.....	Plutocrat Mining and Milling Co.....	1319 S. Fillmore St., Denver.....
Portland	Cripple Creek.....	Portland Gold Mining Company.....	Box 86, Colorado Springs.....

(a) Operated for part of year only.

(c) No production reported in 1931.

(m) Mill operated in connection with mine.

OPERATING MINES IN TELLER COUNTY, 1931—Continued

Name of Mine	Location	Operator	P. O. Address	Character of Product
Rose Nicol.....	Cripple Creek	United Gold Mines Company	Box 86, Colorado Springs	Den-Gold
School Section Block 8.....	Cripple Creek	Fannie Fern Mines, Inc.	320 C. A. Johnson Bldg., Denver	Gold
Shurtloff Dump.....	Victor.....	Black Belle Mining Company	221 Central Savings Bank Bldg., Denver	Gold
Solomon Shaft.....	Cripple Creek	United Gold Mines Company	Box 86, Colorado Springs	Gold
Stratton.....	Cripple Creek	Stratton Cripple Creek Mining and Development Company	Independence Bldg., Colorado Springs	Gold
Strong.....	Victor.....	Strong Mining Company	Colorado Springs	Gold
Sunflower (a).....	Cripple Creek	J. S. Kirk and J. W. Daniel	Cripple Creek	Gold (c)
Theresa Shaft.....	Victor.....	United Gold Mines Company	Box 86, Colorado Springs	Gold
Victindicator.....	Victor.....	United Gold Mines Company	Box 86, Colorado Springs	Gold
War Eagle.....	Cripple Creek	J. M. Hemby	Cripple Creek	Gold
Wilson Vein (a).....	Cripple Creek	Doodle Bug Gold Mining Company	24-25 Midland Block, Colorado Springs	Gold

Town	County	Name	Product	Operator	Address
Lyons.....	Boulder	Lyons Red Granite	Granite	John Rabesco	653 Perry St., Denver
Jamestown.....	Boulder	Puzzle	Feldspar	Tower and Long	Jamestown
Lyons.....	Boulder	St. Vrain Red Sandstone	Sandstone	J. C. Brodie	609 Interstate Trust Bldg., Denver
Salida.....	Chaffee	Bowen	Granite	Virgil Edwards and Assoc.	Salida
Monarch.....	Chaffee	Monarch	Limestone	Colo. Fuel and Iron Co.	Continental Oil Bldg., Denver
Salida.....	Chaffee	Mountain Cross	Granite	Mountain Cross Granite Corp.	Salida
Salida.....	Chaffee	Original Dark Granite	Granite	Salida Granite Corp.	Salida
Littleton.....	Douglas	Helmer	Red Sand, Fire stone, Limestone, Silica	Clay, Limestone, Silica	
Castle Rock.....	Douglas	Johnson Clay	Plastic Clay	T. L. Helmer and Geo. Helmer	Silica
Husted.....	El Paso	Husted Clay Mine	Fire Clay	H. G. Johnson	Castle Rock
Colo. Springs.....	El Paso	Lennox Breed	Limestone	Standard Fire Brick Co.	Box 654, Pueblo
Manitou.....	El Paso	Manitou Green Stone	Ruble Stone	Holly Sugar Corporation	Colorado Springs
Manitou.....	El Paso	Western Lime Plant	Limestone	Manitou Green Stone Quarries	San Jacinto Life Bldg., Beaumont, Texas
Canon City.....	Fremont	B. D.	Silica	The Western Lime Company	551 Equitable Bldg., Denver
Canon City.....	Fremont	Burnito	Sandstone	Diamond Fire Brick Company	Canon City
Canon City.....	Fremont	Canon City	Sandstone	S. Vernon St. John	1130 Macon Ave., Denver
Calcite.....	Fremont	Calcite	Limestone	Frank H. Norberg	Calcite
Texas Creek.....	Fremont	Colorado Barry	Granite	J. A. Lamb	Cotopaxi

OPERATING QUARRIES AND CLAY PITS, 1931

Portland.....	Fremont.....	Colorado Portland Shale.....	Limestone, Shale.....	Colorado Portland Cement Co., Denver National Bldg., Denver
Cotopaxi.....	Fremont.....	Cotopaxi Granite.....	Granite.....	Standard Granite Company...Cotopaxi
Canon City.....	Fremont.....	Deer Hill.....	Fire Clay.....	Diamond Fire Brick Company, Canon City
Canon City.....	Fremont.....	Dolomite.....	Dolomite.....	Roy Frankenberg and J. P. Thomas, Jr., 401 Rudd Ave., Canon City
Canon City.....	Fremont.....	Eight Mile Park.....	Silica.....	The Standard Fire Brick Co., Box 654, Pueblo
Canon City.....	Fremont.....	Flint.....	Fire Clay.....	Diamond Fire Brick Company, Canon City
Coaldale.....	Fremont.....	Gypsum.....	Gypsum.....	T. A. Gilray.....Coaldale
Canon City.....	Fremont.....	Hansen.....	Gypsum.....	Colorado Portland Cement Co., Denver National Bldg., Denver
Canon City.....	Fremont.....	Jewett Fire Clay.....	Fire Clay.....	Jewett Fire Brick Company...Box 505, Canon City
Texas Creek.....	Fremont.....	Oak Creek.....	Granite.....	Verl D. Coleman.....1025 N. Cedar St., Colorado Springs
Salida.....	Fremont.....	Rogers.....	Limestone.....	Salida Limerock Company.....Salida
Texas Creek.....	Fremont.....	Rose Pink.....	Granite.....	Texas Creek Granite Company, Texas Creek
Canon City.....	Fremont.....	Rose Pink Granite.....	Granite.....	Salida Granite Corporation.....Salida
Canon City.....	Fremont.....	Shaw Park.....	Silica.....	Diamond Fire Brick Company, Canon City
Canon City.....	Fremont.....	Shipley.....	Feldspar.....	Robert A. Shipley.....Elks Home, Florence
Canon City.....	Fremont.....	Suzanne No. 1.....	Feldspar.....	Colorado Feldspar Company...Thatcher Bldg., Pueblo
Canon City.....	Fremont.....	Swastika.....	Fire Clay.....	Diamond Fire Brick Company, Canon City
Salida.....	Fremont.....	U. S. Black Marble.....	Limestone.....	Boyer and Davis.....225 C St., Salida
Canon City.....	Fremont.....	U. S. Marble and Travertine Group.....	Marble.....	
Wellsville.....	Fremont.....	Wellsville.....	Limestone.....	U. S. Marble Company.....Temple Court Bldg., Denver
Wellsville.....	Fremont.....	Wellsville Travertine.....	Limestone.....	Holly Sugar Corporation.....Colorado Springs
Canon City.....	Fremont.....	Zingheim Mica.....	Travertine.....	Colorado Travertine Company, Continental Oil Bldg., Denver
Glenwood Springs.....	Garfield.....	Glenwood.....	Beryl.....	E. E. Zingheim.....Box 190, Orchard Ave., Canon City
Marble.....	Gunnison.....	Yule Colorado.....	Limestone.....	Holly Sugar Corporation.....Colorado Springs
Mustang.....	Huerfano.....	Chamblin Fire Clay.....	Marble.....	Yule Colorado Marble Co.....Marble
Mustang.....	Huerfano.....	Chamblin Spur.....	Fire Clay.....	Standard Fire Brick Company, Box 654, Pueblo
Golden.....	Jefferson.....	Bertrand Quarry.....	Sandstone.....	Standard Fire Brick Company, Box 654, Pueblo
Golden.....	Jefferson.....	Binder Clay.....	Crushed Granite.....	
Golden.....	Jefferson.....	Cools Clay Mine and Plant.....	Clay.....	J. B. Bertrand, Inc., 301 Union Station, Denver
Golden.....	Jefferson.....	Crucible Clay.....	Clay.....	Denver Pressed Brick Co., 219 Temple Court Bldg., Denver
Golden.....	Jefferson.....	Fire Clay.....	Clay.....	Coors Porcelain Company...8th and Ford Sts., Golden
Golden.....	Jefferson.....	Golden Clay.....	Fire Clay.....	Colorado Crucible and Clay Co., Box 1107, Denver
Golden.....	Jefferson.....	Johnson Clay.....	Fire Clay.....	Grant Parfet.....Golden
Golden.....	Jefferson.....	Lindsay Clay.....	Fire Clay.....	The Golden Clay Mining Co., Box 292, Golden
Golden.....	Jefferson.....	Moffit.....	Fire Clay.....	W. A. Johnson.....4045 Lowell Blvd., Denver
Golden.....	Jefferson.....	No. 10 Open Pit Clay.....	Fire Clay.....	Geo. W. Lindsay.....Box 1107, Denver
			Plastic Clay.....	Grant Parfet.....Golden

OPERATING QUARRIES AND CLAY PITS, 1931—Continued

Town	County	Name	Product	Operator	Address
Golden	Jefferson	Northwestern Clay	Clay	The Northwestern Terra Cotta Company	1st and Umatilla St., Denver
Golden	Jefferson	Orahood Clay	Clay	Denver Pressed Brick Co.	219 Temple Court Bldg., Denver
Buffalo Creek	Jefferson	Oregon No. 2	Feldspar	Colorado Clay and Mining Co.	Sullivan Bldg., Boulder
Golden	Jefferson	Rockwell	Clay	Jefferson Clay and Investment Company	
Golden	Jefferson	Rubey Clay	Clay	The Rubey Clay Company	Golden
Fort Collins	Larimer	Big Tank	Feldspar	O. A. Davis and I. M. Pullis	Golden
Laporte	Larimer	Boettcher Cement Quarry and Mill	Limestone and Shale		Nunn
Fort Collins	Larimer	Clark	Limestone	Colorado Portland Cement Co.	Denver National Bldg., Denver
Laporte	Larimer	Gypsum	Limestone	Clark Quarries, Inc.	Fort Collins
Lyons	Larimer	Hathaway Red Granite	Gypsum	S. H. Roberts and Company	Laporte
Bellvue	Larimer	Lone Pine	Granite	S. T. Hathaway	Lyons
Loveland	Larimer	U. S. Gypsum	Limestone	John and Victor Josefson	Bellvue
Trinidad	Las Animas	Trinidad Brick and Tile Company	Gypsum	United States Gypsum Co.	300 W. Adams St., Chicago, Ill.
Creede	Mineral	Ultimate Tunnel	Shale	The Trinidad Brick and Tile Company	Trinidad
La Junta	Otero	La Junta Shale and Brick Plant	Bleaching Clay	Peerless Clay and Mineral Co.	211 Thatcher Bldg., Pueblo
Pueblo	Pueblo	Standard Fire Brick Plant	Clay and Shale	Clay Products, Inc.	La Junta
Pueblo	Pueblo	Summit	Sewer Pipe, Silica and Fire Brick	Standard Fire Brick Co.	Box 654, Pueblo
Stone City	Pueblo	Turkey Creek	Clay	The Summit Pressed Brick and Tile Company	13th and Erie Sts. Pueblo
Stone City	Pueblo	Turkey Creek Stone	Fire Clay	The Pueblo Clay Products Co.	Box 697, Pueblo
Mustang	Pueblo	Vulcan	Sandstone	Pueblo Quarries, Inc.	310 Central Block, Pueblo
			Fire Clay	The Standard Fire Brick Co.	Box 654, Pueblo

OPERATING MILLS AND SMELTERS, 1931

Character of Plant	Town	County	Operator	Address
Arsenic and Cadmium Refinery	Denver	Adams and Denver	American Smelting and Refining Company	120 Broadway, New York City, New York
Boulder Ore Sampler	Boulder	Boulder	Boulder Ore Sampling Co.	Boulder
Tungsten Concentrates	Pueblo	Nederland	Tungsten Production Co.	940 10th St., Boulder
Tungsten Concentrates	Pueblo	Nederland	Wolf Tongue Mining Co.	1st National Bank Bldg., Boulder

Vanadium Concentrates.....	Denver.....	Interstate Co. Partnership Association.....	2145 S. Mariposa St., Denver
Cyanidation and Flotation.....	Colorado Springs...	Golden Cycle Corporation.....	Golden Cycle Bldg., Colorado Springs
Zinc Oxide.....	Canon City.....	Empire Zinc Company.....	Canon City
Lead Smelter.....	Leadville.....	American Smelting and Refining Company.....	120 Broadway, New York City, New York
Cyanidation (under construction)	Leadville.....	Cramer and Company.....	Leadville
Lead Smelter.....	Durango.....	American Smelting and Refining Company.....	120 Broadway, New York City, New York
Henley-Roseboro.....	Durango.....	P. D. Solomon and Sons.....	4th and 12th Sts., Durango
Henley-Roseboro.....	Durango.....	D. D. Pargh and Company.....	Durango
Mica Grinding.....	Pueblo.....	General Mica, Inc.....	211 Thatcher Bldg., Pueblo
Clay Crushing and Grinding..	Pueblo.....	Peerless Clay and Mineral Co.....	721 W. 3rd St., Pueblo

OPERATING PLACERS AND DREDGES, 1931

Name	Town	County	Operator	Address
Colby.....	Boulder.....	Boulder.....	Albert More, A. B. More and R. B. Johnston.....	634 Highland, Boulder
Buck.....	Granite.....	Chaffee.....	Buck Mining Corporation.....	Buena Vista
Penn-Nevada Dredge.....	Granite.....	Chaffee.....	Penn-Nevada Corporation.....	28 St. Nicholas Bldg., Pittsburgh, Pa.
Gold Plt.....	Idaho Springs.....	Clear Creek.....	Idaho Springs Building and Improvement Association...	Idaho Springs
Theobald.....	Idaho Springs.....	Clear Creek.....	President Gold Mines, Inc.....	502 Midland Savings Bldg., Denver
Lump Gulch.....	Rollinsville.....	Gilpin.....	B. P. P. Mining Company.....	Rollinsville
Meyers.....	Rollinsville.....	Gilpin.....	Frank Meyers.....	Rollinsville
Goody.....	Golden.....	Jefferson and Denver.....	Denver School of Placer Mining.....	309 Guardian Trust Bldg., Denver
Jack Rabbit.....	Lay.....	Moffat.....	Lee Webb and A. G. Wallihan. Lay	
Timberlake.....	Craig.....	Moffat.....	James Goody.....	Craig
Zimmerman.....	Craig.....	Moffat.....	Geo. and Frank Zimmerman.....	Craig
E Bar Placer.....	Placerville.....	San Miguel.....	J. V. Robertson and Roy Nelson.....	Room 306, P. O. Bldg., Denver
Nugget Placer.....	Placerville.....	San Miguel.....	T. J. Reeves, A. C. Wood and L. G. Warrick.....	Telluride
Willson and Chambers.....	Placerville.....	San Miguel.....	Willson and Chambers.....	Placerville

OPERATING PLACERS AND DREDGES, 1931—Continued

Name	Town	County	Operator	Address
Bemrose	Breckenridge.....	Summit.....	Buffalo Exploration and Mining Company.....	Room 5, McIntyre Bldg., Colorado Springs 1716 California St., Denver
Blue River Dredge.....	Breckenridge.....	Summit.....	Continental Dredging Co.....	Kokomo
Eureka	Kokomo.....	Summit.....	Paul Maurer.....	Room 5, McIntyre Bldg., Colorado Springs
Owl	Breckenridge.....	Summit.....	Buffalo Exploration and Mining Company.....	Breckenridge
Washington	Breckenridge.....	Summit.....	P. A. Kelly.....	Denham Bldg., Denver
You Be Dam.....	Breckenridge.....	Summit.....	Godman Lumber Company.....	

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